The University of the State of New York
REGENTS HIGH SCHOOL EXAMINATION

GEOMETRY

Tuesday, August 20, 2024 — 12:30 to 3:30 p.m., only

Student Name: _____

School Name: _____

The possession or use of any communications device is strictly prohibited when taking this examination. If you have or use any communications device, no matter how briefly, your examination will be invalidated and no score will be calculated for you.

Print your name and the name of your school on the lines above.

A separate answer sheet for **Part I** has been provided to you. Follow the instructions from the proctor for completing the student information on your answer sheet.

This examination has four parts, with a total of 35 questions. You must answer all questions in this examination. Record your answers to the Part I multiple-choice questions on the separate answer sheet. Write your answers to the questions in **Parts II, III,** and **IV** directly in this booklet. All work should be written in pen, except graphs and drawings, which should be done in pencil. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. Utilize the information provided for each question to determine your answer. Note that diagrams are not necessarily drawn to scale.

The formulas that you may need to answer some questions in this examination are found at the end of the examination. This sheet is perforated so you may remove it from this booklet.

Scrap paper is not permitted for any part of this examination, but you may use the blank spaces in this booklet as scrap paper. A perforated sheet of scrap graph paper is provided at the end of this booklet for any question for which graphing may be helpful but is not required. You may remove this sheet from this booklet. Any work done on this sheet of scrap graph paper will *not* be scored.

When you have completed the examination, you must sign the statement printed at the end of the answer sheet, indicating that you had no unlawful knowledge of the questions or answers prior to the examination and that you have neither given nor received assistance in answering any of the questions during the examination. Your answer sheet cannot be accepted if you fail to sign this declaration.

Notice ...
A graphing calculator, a straightedge (ruler), and a compass must be available for you to use while taking this examination.

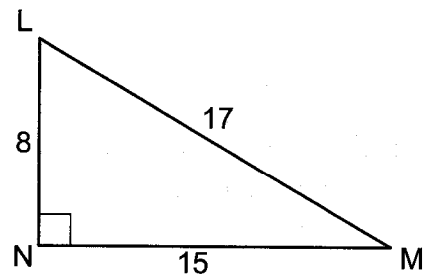
DO NOT OPEN THIS EXAMINATION BOOKLET UNTIL THE SIGNAL IS GIVEN.

Part I

Answer all 24 questions in this part. Each correct answer will receive 2 credits. No partial credit will be allowed. Utilize the information provided for each question to determine your answer. Note that diagrams are not necessarily drawn to scale. For each statement or question, choose the word or expression that, of those given, best completes the statement or answers the question. Record your answers on your separate answer sheet. [48]

Use this space for computations.

1 In right triangle LMN below, $LN = 8$, $MN = 15$, and $LM = 17$.



If triangle LMN is translated such that it maps onto triangle XYZ, which statement is always true?

(1) $XY = 15$

(2) $YZ = 17$

(3) $m\angle Z = 90°$

(4) $m\angle X = 90°$

2 Directed line segment KC has endpoints $K(-4,-2)$ and $C(1,8)$. Point E divides $\overline{KC}$ such that $KE{:}EC$ is 3:2. What are the coordinates of point E?

(1) $(-1,4)$

(2) $(-2,2)$

(3) $(-3,0)$

(4) $(0,6)$

3 In right triangle DAN, $m\angle A = 90°$. Which statement must always be true?

(1) $\cos D = \cos N$

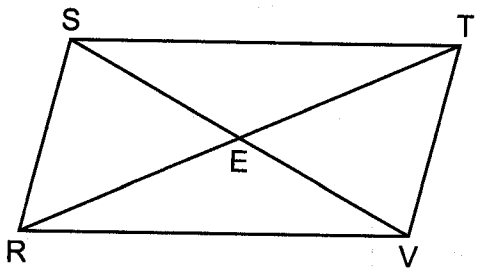
(2) $\cos D = \sin N$

(3) $\sin A = \cos N$

(4) $\cos A = \tan N$

Use this space for computations.

4 In the diagram below of parallelogram $RSTV$, diagonals $\overline{SV}$ and $\overline{RT}$ intersect at E.



Which statement is always true?

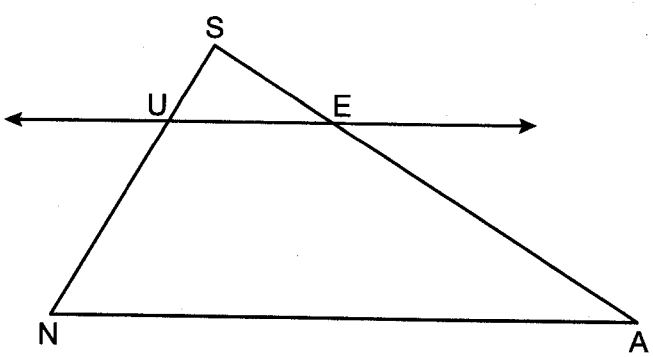
(1) $\overline{SR} \cong \overline{RV}$

(2) $\overline{RT} \cong \overline{SV}$

(3) $\overline{SE} \cong \overline{RE}$

(4) $\overline{RE} \cong \overline{TE}$

5 In $\triangle SNA$ below, $\overleftrightarrow{UE} \parallel \overline{NA}$.



If $SU = 3$, $SN = 11$, and $EA = 13$, what is the length of $\overline{SE}$, to the *nearest tenth*?

(1) 2.5

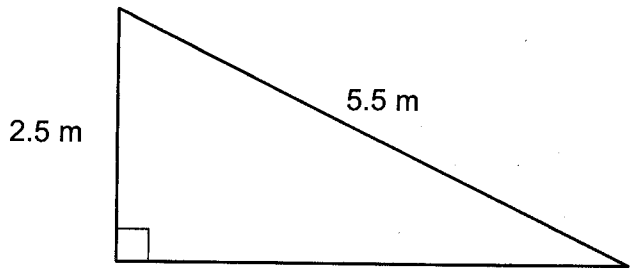
(2) 3.5

(3) 4.9

(4) 17.9

Use this space for computations.

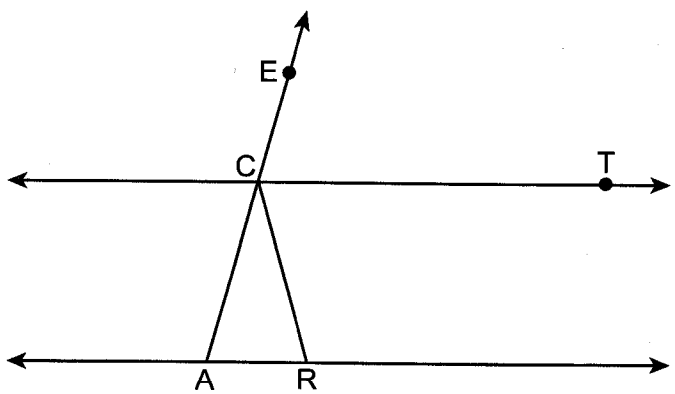
6 Many roofs are slanted to prevent the buildup of snow. As modeled below, the length of a roof is 5.5 meters and it rises to a height of 2.5 meters.



The angle of elevation of the roof, to the *nearest degree*, is

(1) 24°
(2) 25°
(3) 27°
(4) 28°

7 In the diagram below, $\overleftrightarrow{CT} \parallel \overleftrightarrow{AR}$, and $\overleftrightarrow{ACE}$ and $\overline{RC}$ are drawn such that $\overline{AC} \cong \overline{RC}$.

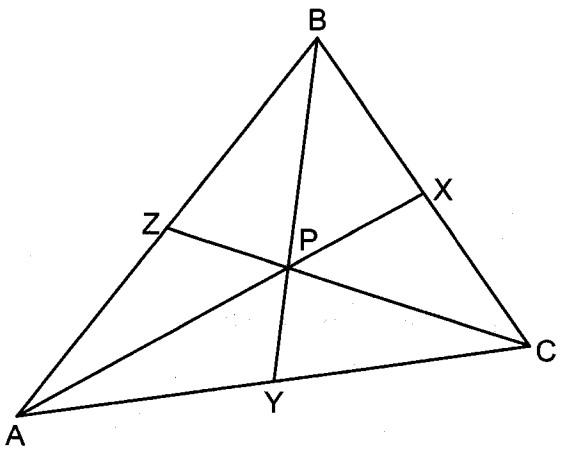


If $m\angle ECT = 75°$, what is $m\angle ACR$?

(1) 30°
(2) 60°
(3) 75°
(4) 105°

Use this space for computations.

8 In the diagram below, $\triangle ABC$ has medians $\overline{AX}$, $\overline{BY}$, and $\overline{CZ}$ that intersect at point P.



If $AB = 26$, $AC = 28$, and $PC = 16$, what is the perimeter of $\triangle CZA$?

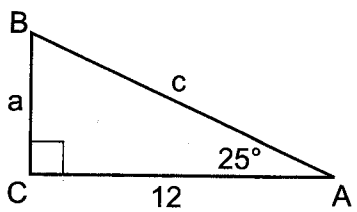
(1) 57

(2) 65

(3) 70

(4) 73

9 In right triangle ABC below, $m\angle C = 90°$, $AC = 12$, and $m\angle A = 25°$.



Which equation is correct for $\triangle ABC$?

(1) $a = \frac{12}{\tan 25°}$

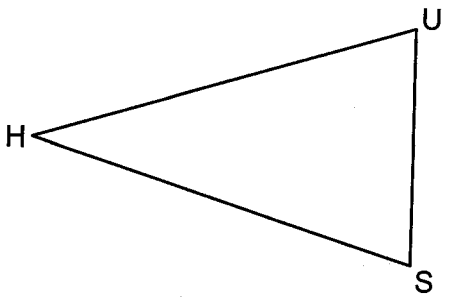
(2) $a = 12 \tan 25°$

(3) $c = \frac{12}{\tan 25°}$

(4) $c = 12 \tan 25°$

10 Triangle HUS is shown below.

Use this space for computations.



If point G is located on $\overline{US}$ and $\overline{HG}$ is drawn, which additional information is sufficient to prove $\triangle HUG \cong \triangle HSG$ by SAS?

(1) $\overline{HG}$ bisects $\overline{US}$

(2) $\overline{HG}$ is an altitude

(3) $\overline{HG}$ bisects $\angle UHS$

(4) $\overline{HG}$ is the perpendicular bisector of $\overline{US}$

11 The area of the base of a cone is 9π square inches. The volume of the cone is 36π cubic inches. What is the height of the cone in inches?

(1) 12

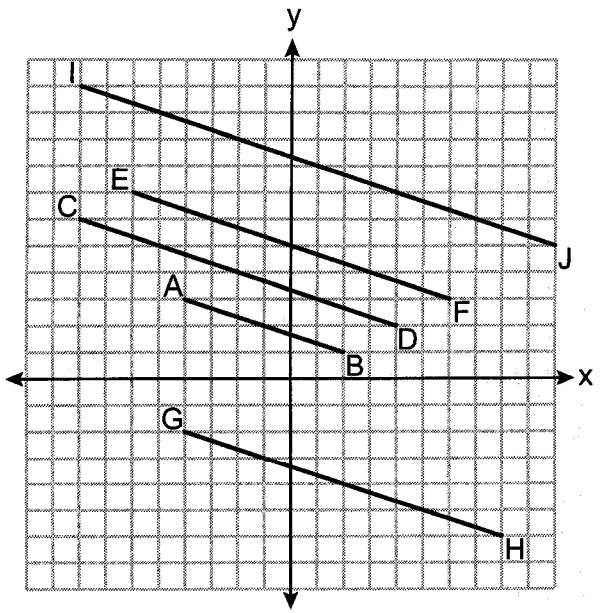
(2) 8

(3) 3

(4) 4

Use this space for computations.

12 On the set of axes below, $\overline{AB}$, $\overline{CD}$, $\overline{EF}$, $\overline{GH}$, and $\overline{IJ}$ are drawn.



Which segment is the image of $\overline{AB}$ after a dilation with a scale factor of 2 centered at $(-2,-1)$?

(1) $\overline{CD}$

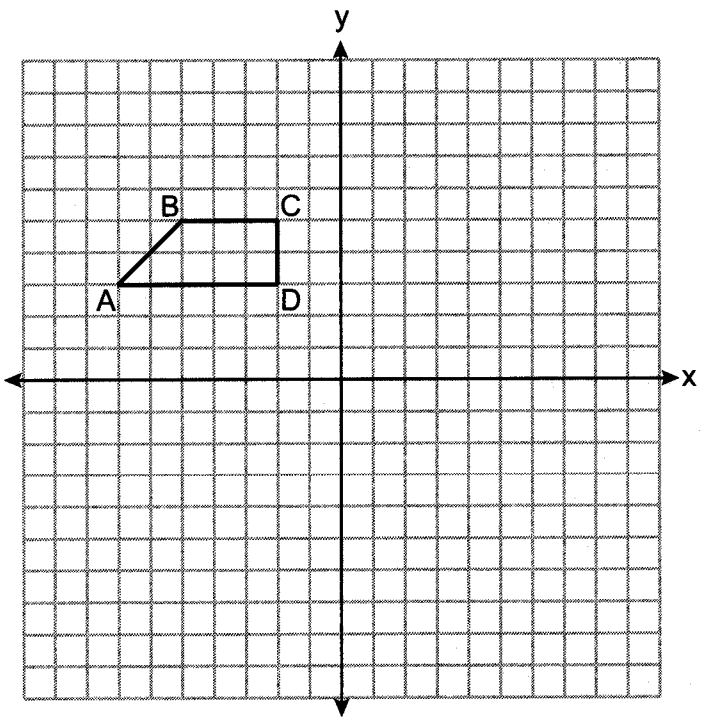
(2) $\overline{EF}$

(3) $\overline{GH}$

(4) $\overline{IJ}$

Use this space for computations.

13 Trapezoid $ABCD$ is graphed on the set of axes below.



Which transformation would map point A onto $A'(3,-7)$?

(1) reflection over $y = x$

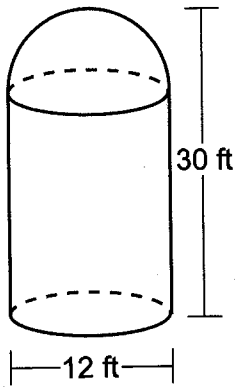
(2) reflection over the y-axis

(3) rotation of 180° about (0,0)

(4) rotation of 90° counterclockwise about (0,0)

Use this space for computations.

14 A storage building is modeled below by a hemisphere on top of a cylinder. The diameter of both the cylinder and hemisphere is 12 feet. The total height of the storage building is 30 feet.



To the *nearest cubic foot*, what is the volume of the storage building?

(1) 942
(2) 2488
(3) 3167
(4) 3845

15 Which regular polygon will carry onto itself after a 135° rotation about its center?

(1) triangle
(2) pentagon
(3) hexagon
(4) octagon

16 What is the length of the radius of the circle whose equation is $x^2 + y^2 - 2x + 4y - 5 = 0$?

(1) $\sqrt{5}$
(2) $\sqrt{10}$
(3) 5
(4) 10

Use this space for computations.

17 The line represented by the equation $y = 4x + 15$ is dilated by a scale factor of 2 centered at the origin. Which equation represents its image?

(1) $y = 4x + 15$

(2) $y = 4x + 30$

(3) $y = 8x + 15$

(4) $y = 8x + 30$

18 Line segment RH has endpoints $R(-4,4)$ and $H(2,-4)$. Which equation represents a line perpendicular to $\overline{RH}$ that passes through the point $(3,-1)$?

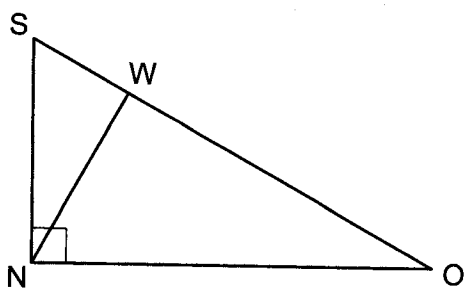
(1) $y + 1 = \frac{3}{4}(x - 3)$

(2) $y + 1 = -\frac{3}{4}(x - 3)$

(3) $y + 1 = \frac{4}{3}(x - 3)$

(4) $y + 1 = -\frac{4}{3}(x - 3)$

19 In right triangle SNO below, altitude $\overline{NW}$ is drawn to hypotenuse $\overline{SO}$.



Which statement is *not* always true?

(1) $\frac{SO}{SN} = \frac{SN}{SW}$

(2) $\frac{SW}{NS} = \frac{NS}{OW}$

(3) $\frac{SO}{ON} = \frac{ON}{OW}$

(4) $\frac{OW}{NW} = \frac{NW}{SW}$

20 A rectangle has a width of 3 and a length of 4. The rectangle is dilated by a scale factor of 1.8. What is the area of its image, to the *nearest tenth*?

(1) 3.7

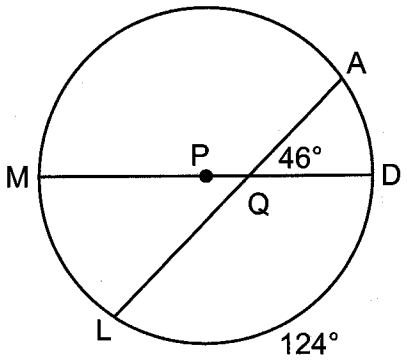
(2) 6.7

(3) 21.6

(4) 38.9

Use this space for computations.

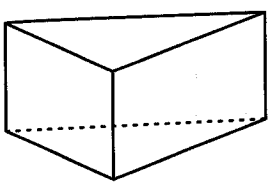
21 In the diagram below of circle P, diameter $\overline{MD}$ and chord $\overline{AL}$ intersect at Q, $m\angle AQD = 46°$, and $m\overset{\frown}{LD} = 124°$.



What is $m\overset{\frown}{AD}$?

(1) 36°
(2) 46°
(3) 51°
(4) 92°

22 The right prism with a triangular base shown below is cut by a plane perpendicular to its bases.

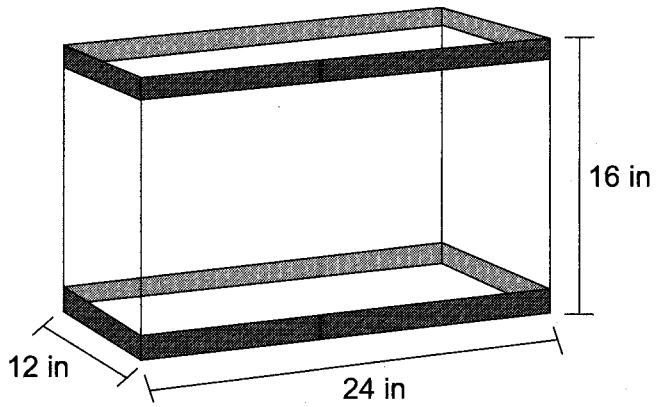


The two-dimensional shape of the cross section is always a

(1) triangle
(2) rhombus
(3) pentagon
(4) rectangle

Use this space for computations.

23 A rectangular fish tank measures 24 inches long, 12 inches wide, and 16 inches high, as modeled in the diagram below.



If the empty tank weighs 25 pounds and the fish tank is filled with water to a height of 14 inches, what is the approximate weight of the tank and water?

[27.7 $in.^3$ = 1 pound of water]

(1) 146
(2) 166
(3) 171
(4) 191

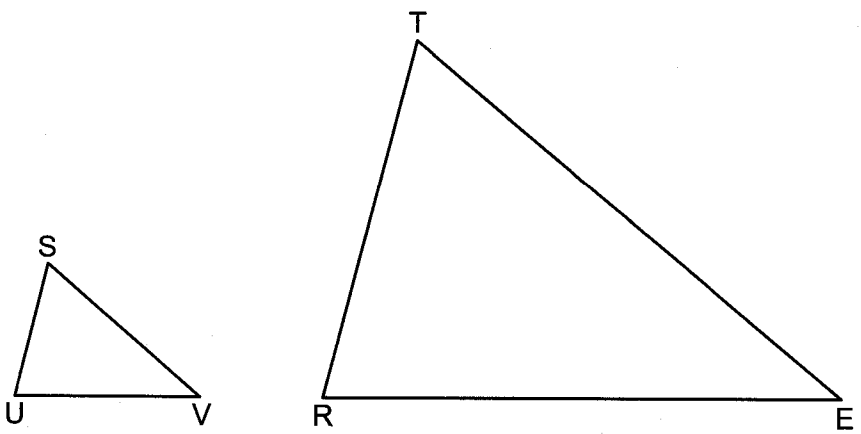
24 A circle has a radius of 4.5. What is the measure of the central angle that intercepts an arc whose length is 6.2, to the *nearest degree*?

(1) 35°
(2) 42°
(3) 64°
(4) 79°

Part II

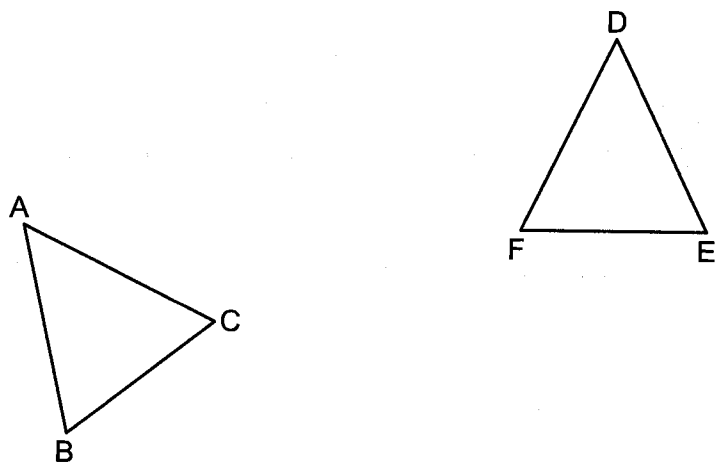
Answer all 7 questions in this part. Each correct answer will receive 2 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. Utilize the information provided for each question to determine your answer. Note that diagrams are not necessarily drawn to scale. For all questions in this part, a correct numerical answer with no work shown will receive only 1 credit. All answers should be written in pen, except for graphs and drawings, which should be done in pencil. [14]

25 In the diagram below, $\triangle SUV \sim \triangle TRE$.



If $SU = 5$, $UV = 7$, $TR = 14$, and $TE = 21$, determine and state the length of $\overline{SV}$.

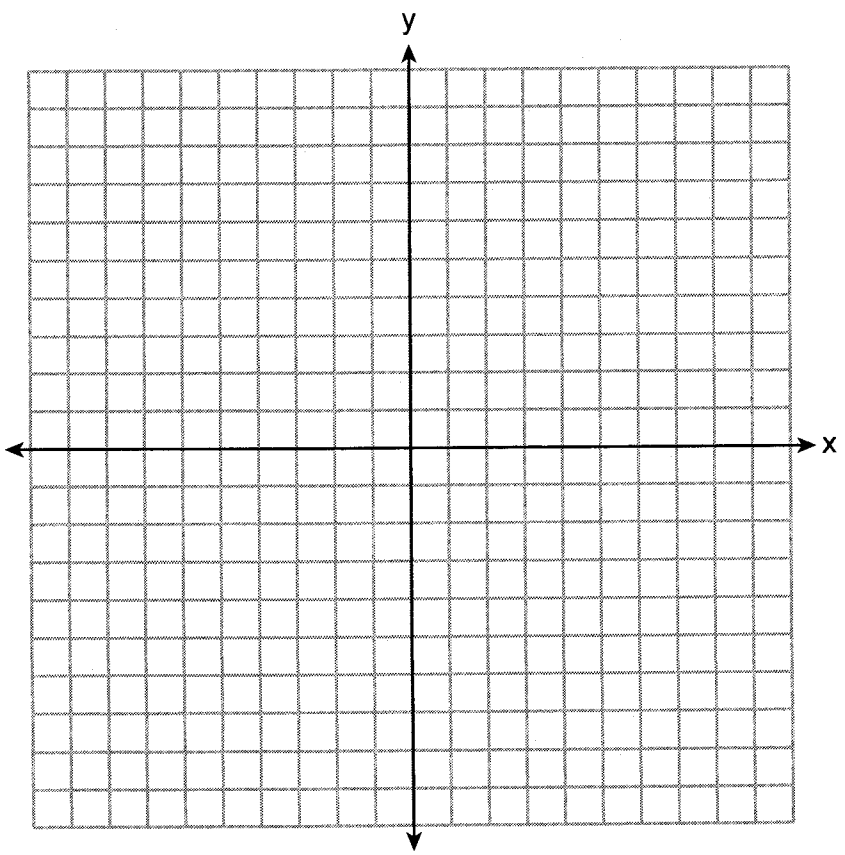
26 Using a compass and straightedge, construct the line of reflection that maps $\triangle ABC$ onto its image, $\triangle DEF$. [Leave all construction marks.]



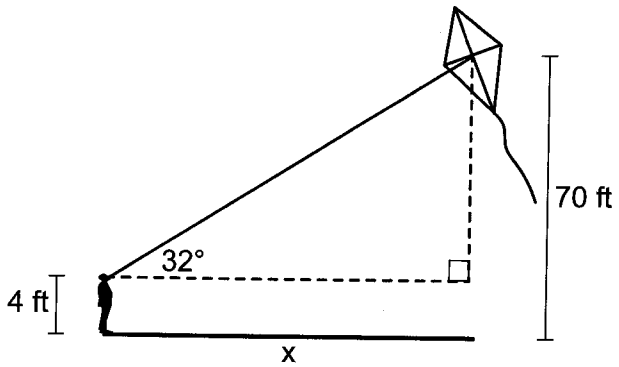
27 Triangle MAX has vertices with coordinates $M(-5,-2)$, $A(1,4)$, and $X(4,1)$.

Determine and state the area of $\triangle MAX$.

[The use of the set of axes below is optional.]

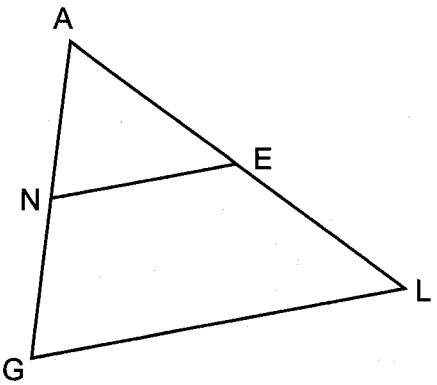


28 A person observes a kite at an angle of elevation of 32° from a line of sight that begins 4 feet above the ground, as modeled in the diagram below. At the moment of observation, the kite is 70 feet above the ground.



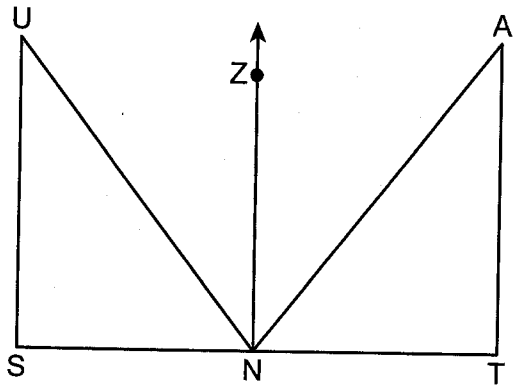
Determine and state the horizontal distance, x, between the person and the point on the ground directly below the kite, to the *nearest foot*.

29 In $\triangle AGL$ below, N and E are the midpoints of $\overline{AG}$ and $\overline{AL}$, respectively, $\overline{NE}$ is drawn.



If $NE = 15$ and $GL = 3x - 12$, determine and state the value of x.

30 In the diagram below, $\triangle TAN$ is the image of $\triangle SUN$ after a reflection over $\overleftrightarrow{NZ}$.



Use the properties of rigid motions to explain why $\triangle TAN \cong \triangle SUN$.

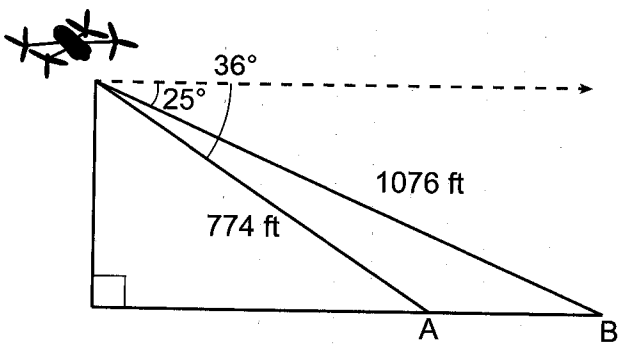
31 A pyramid with a square base is made of solid glass. The pyramid has a base with a side length of 5.7 cm and a height of 7 cm. The density of the glass is 2.4 grams per cubic centimeter.

Determine and state, to the *nearest gram*, the mass of the pyramid.

Part III

Answer all 3 questions in this part. Each correct answer will receive 4 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. Utilize the information provided for each question to determine your answer. Note that diagrams are not necessarily drawn to scale. For all questions in this part, a correct numerical answer with no work shown will receive only 1 credit. All answers should be written in pen, except for graphs and drawings, which should be done in pencil. [12]

32 A drone is used to measure the size of a brush fire on the ground. Segment AB represents the width of the fire, as shown below. The drone calculates the distance to point B to be 1076 feet at an angle of depression of 25°. At the same point, the drone calculates the distance to point A to be 774 feet at an angle of depression of 36°.

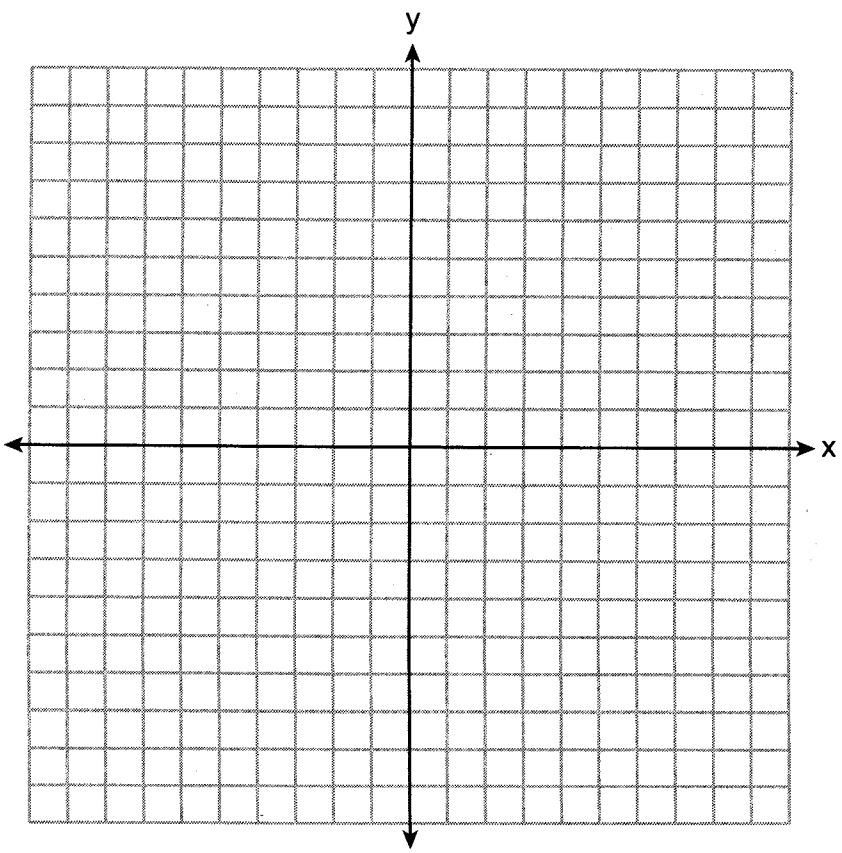


Determine and state the width of the fire, $\overline{AB}$, to the *nearest foot*.

33 Quadrilateral $ABCD$ has vertices with coordinates $A(-3,6)$, $B(6,3)$, $C(6,-2)$, and $D(-6,2)$.

Joe defines an isosceles trapezoid as a trapezoid with congruent diagonals. Use Joe's definition to prove $ABCD$ is an isosceles trapezoid.

[The use of the set of axes below is optional.]



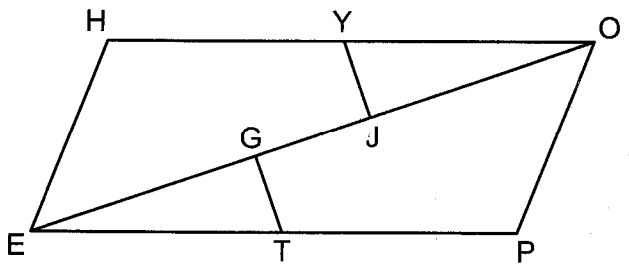
34 Ali made six solid spherical decorations out of modeling clay. Each decoration has a radius of 2.5 inches. The weight of clay is 68 pounds per cubic foot.

Determine and state, to the *nearest pound*, the total weight of the six decorations.

Part IV

Answer the question in this part. A correct answer will receive 6 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. Utilize the information provided to determine your answer. Note that diagrams are not necessarily drawn to scale. A correct numerical answer with no work shown will receive only 1 credit. All answers should be written in pen, except for graphs and drawings, which should be done in pencil. [6]

35 In quadrilateral *HOPE* below, $\overline{EH} \cong \overline{OP}$, $\overline{EP} \cong \overline{OH}$, $\overline{EJ} \cong \overline{OG}$, and $\overline{TG}$ and $\overline{YJ}$ are perpendicular to diagonal $\overline{EO}$ at points G and J, respectively.



Prove that $\overline{TG} \cong \overline{YJ}$.

The State Education Department / The University of the State of New York

Regents Examination in Geometry – August 2024

Scoring Key: Part I (Multiple-Choice Questions)

Examination	Date	Question Number	Scoring Key	Question Type	Credit
Geometry	August '24	**1**	3	MC	2
Geometry	August '24	**2**	1	MC	2
Geometry	August '24	**3**	2	MC	2
Geometry	August '24	**4**	4	MC	2
Geometry	August '24	**5**	3	MC	2
Geometry	August '24	**6**	3	MC	2
Geometry	August '24	**7**	1	MC	2
Geometry	August '24	**8**	2	MC	2
Geometry	August '24	**9**	2	MC	2
Geometry	August '24	**10**	4	MC	2
Geometry	August '24	**11**	1	MC	2
Geometry	August '24	**12**	2	MC	2
Geometry	August '24	**13**	1	MC	2
Geometry	August '24	**14**	3	MC	2
Geometry	August '24	**15**	4	MC	2
Geometry	August '24	**16**	2	MC	2
Geometry	August '24	**17**	2	MC	2
Geometry	August '24	**18**	1	MC	2
Geometry	August '24	**19**	2	MC	2
Geometry	August '24	**20**	4	MC	2
Geometry	August '24	**21**	1	MC	2
Geometry	August '24	**22**	4	MC	2
Geometry	August '24	**23**	3	MC	2
Geometry	August '24	**24**	4	MC	2

Regents Examination in Geometry – August 2024

Scoring Key: Parts II, III, and IV (Constructed-Response Questions)

Examination	Date	Question Number	Scoring Key	Question Type	Credit
Geometry	August '24	**25**	-	CR	2
Geometry	August '24	**26**	-	CR	2
Geometry	August '24	**27**	-	CR	2
Geometry	August '24	**28**	-	CR	2
Geometry	August '24	**29**	-	CR	2
Geometry	August '24	**30**	-	CR	2
Geometry	August '24	**31**	-	CR	2
Geometry	August '24	**32**	-	CR	4
Geometry	August '24	**33**	-	CR	4
Geometry	August '24	**34**	-	CR	4
Geometry	August '24	**35**	-	CR	6

Key
MC = Multiple-choice question
CR = Constructed-response question

The chart for determining students' final examination scores for the **August 2024 Regents Examination in Geometry** will be posted on the Department's web site at: https://www.nysedregents.org/geometryre/ on the day of the examination. Conversion charts provided for the previous administrations of the Regents Examination in Geometry must NOT be used to determine students' final scores for this administration.

FOR TEACHERS ONLY

The University of the State of New York
REGENTS HIGH SCHOOL EXAMINATION

GEOMETRY

Tuesday, August 20, 2024 — 12:30 to 3:30 p.m., only

RATING GUIDE

Updated information regarding the rating of this examination may be posted on the New York State Education Department's web site during the rating period. Check this web site at: https://www.nysed.gov/state-assessment/high-school-regents-examinations and select the link "Scoring Information" for any recently posted information regarding this examination. This site should be checked before the rating process for this examination begins and several times throughout the Regents Examination period.

The Department is providing supplemental scoring guidance, the "Model Response Set," for the Regents Examination in Geometry. This guidance is intended to be part of the scorer training. Schools should use the Model Response Set along with the rubrics in the Scoring Key and Rating Guide to help guide scoring of student work. While not reflective of all scenarios, the Model Response Set illustrates how less common student responses to constructed response questions may be scored. The Model Response Set will be available on the Department's web site at: https://www.nysedregents.org/geometryre/.

Mechanics of Rating

The following procedures are to be followed for scoring student answer papers for the Regents Examination in Geometry. More detailed information about scoring is provided in the publication *Information Booklet for Scoring the Regents Examination in Geometry*.

Do *not* attempt to correct the student's work by making insertions or changes of any kind. In scoring the constructed-response questions, use check marks to indicate student errors. Unless otherwise specified, mathematically correct variations in the answers will be allowed. Units need not be given when the wording of the questions allows such omissions.

Each student's answer paper is to be scored by a minimum of three mathematics teachers. No one teacher is to score more than approximately one-third of the constructed-response questions on a student's paper. Teachers may not score their own students' answer papers. On the student's separate answer sheet, for each question, record the number of credits earned and the teacher's assigned rater/scorer letter.

Schools are not permitted to rescore any of the constructed-response questions on this exam after each question has been rated once, regardless of the final exam score. Schools are required to ensure that the raw scores have been added correctly and that the resulting scale score has been determined accurately.

Raters should record the student's scores for all questions and the total raw score on the student's separate answer sheet. Then the student's total raw score should be converted to a scale score by using the conversion chart that will be posted on the Department's web site at: https://www.nysed.gov/state-assessment/high-school-regents-examinations by Tuesday, August 20, 2024. Because scale scores corresponding to raw scores in the conversion chart may change from one administration to another, it is crucial that, for each administration, the conversion chart provided for that administration be used to determine the student's final score. The student's scale score should be entered in the box provided on the student's separate answer sheet. The scale score is the student's final examination score.

General Rules for Applying Mathematics Rubrics

I. General Principles for Rating

The rubrics for the constructed-response questions on the Regents Examination in Geometry are designed to provide a systematic, consistent method for awarding credit. The rubrics are not to be considered all-inclusive; it is impossible to anticipate all the different methods that students might use to solve a given problem. Each response must be rated carefully using the teacher's professional judgment and knowledge of mathematics; all calculations must be checked. The specific rubrics for each question must be applied consistently to all responses. In cases that are not specifically addressed in the rubrics, raters must follow the general rating guidelines in the publication *Information Booklet for Scoring the Regents Examination in Geometry*, use their own professional judgment, confer with other mathematics teachers, and/or contact the State Education Department for guidance. During each Regents Examination administration period, rating questions may be referred directly to the Education Department. The contact numbers are sent to all schools before each administration period.

II. Full-Credit Responses

A full-credit response provides a complete and correct answer to all parts of the question. Sufficient work is shown to enable the rater to determine how the student arrived at the correct answer.

When the rubric for the full-credit response includes one or more examples of an acceptable method for solving the question (usually introduced by the phrase "such as"), it does not mean that there are no additional acceptable methods of arriving at the correct answer. Unless otherwise specified, mathematically correct alternative solutions should be awarded credit. The only exceptions are those questions that specify the type of solution that must be used; e.g., an algebraic solution or a graphic solution. A correct solution using a method other than the one specified is awarded half the credit of a correct solution using the specified method.

III. Appropriate Work

Full-Credit Responses: The directions in the examination booklet for all the constructed-response questions state: "Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc." The student has the responsibility of providing the correct answer ***and*** showing how that answer was obtained. The student must "construct" the response; the teacher should not have to search through a group of seemingly random calculations scribbled on the student paper to ascertain what method the student may have used.

Responses With Errors: Rubrics that state "Appropriate work is shown, but…" are intended to be used with solutions that show an essentially complete response to the question but contain certain types of errors, whether computational, rounding, graphing, or conceptual. If the response is incomplete; i.e., an equation is written but not solved or an equation is solved but not all of the parts of the question are answered, appropriate work has ***not*** been shown. Other rubrics address incomplete responses.

IV. Multiple Errors

Computational Errors, Graphing Errors, and Rounding Errors: Each of these types of errors results in a 1-credit deduction. Any combination of two of these types of errors results in a 2-credit deduction. No more than 2 credits should be deducted for such mechanical errors in a 4-credit question and no more than 3 credits should be deducted in a 6-credit question. The teacher must carefully review the student's work to determine what errors were made and what type of errors they were.

Conceptual Errors: A conceptual error involves a more serious lack of knowledge or procedure. Examples of conceptual errors include using the incorrect formula for the area of a figure, choosing the incorrect trigonometric function, or multiplying the exponents instead of adding them when multiplying terms with exponents.

If a response shows repeated occurrences of the same conceptual error, the student should not be penalized twice. If the same conceptual error is repeated in responses to other questions, credit should be deducted in each response.

For 4- and 6-credit questions, if a response shows one conceptual error and one computational, graphing, or rounding error, the teacher must award credit that takes into account both errors. Refer to the rubric for specific scoring guidelines.

Part II

For each question, use the specific criteria to award a maximum of 2 credits. Unless otherwise specified, mathematically correct alternative solutions should be awarded appropriate credit.

(25) **[2]** 7.5, and correct work is shown.

[1] Appropriate work is shown, but one computational error is made.

or

[1] Appropriate work is shown, but one conceptual error is made.

or

[1] 7.5, but no work is shown.

[0] A zero response does not contain enough relevant course-level work to receive any credit, does not satisfy the criteria for one or more credits, or is a correct response that was obtained by an obviously incorrect procedure.

(26) **[2]** A correct construction is drawn showing all appropriate arcs.

[1] Appropriate work is shown, but one construction error is made.

or

[1] A correct construction is drawn showing all appropriate arcs, but the line of reflection is not drawn.

[0] A drawing that is not an appropriate construction is shown.

or

[0] A zero response does not contain enough relevant course-level work to receive any credit, does not satisfy the criteria for one or more credits, or is a correct response that was obtained by an obviously incorrect procedure.

(27) **[2]** 18, and correct work is shown.

[1] Appropriate work is shown, but one computational or graphing error is made.

or

[1] Appropriate work is shown, but one conceptual error is made.

or

[1] 18, but no work is shown.

[0] A zero response does not contain enough relevant course-level work to receive any credit, does not satisfy the criteria for one or more credits, or is a correct response that was obtained by an obviously incorrect procedure.

(28) **[2]** 106, and correct work is shown.

[1] Appropriate work is shown, but one computational or rounding error is made.

or

[1] Appropriate work is shown, but one conceptual error is made.

or

[1] A correct relevant trigonometric equation is written, but no further correct work is shown.

or

[1] 106, but no work is shown.

[0] A zero response does not contain enough relevant course-level work to receive any credit, does not satisfy the criteria for one or more credits, or is a correct response that was obtained by an obviously incorrect procedure.

(29) **[2]** 14, and correct work is shown.

[1] Appropriate work is shown, but one computational error is made.

or

[1] Appropriate work is shown, but one conceptual error is made.

or

[1] 14, but no work is shown.

[0] A zero response does not contain enough relevant course-level work to receive any credit, does not satisfy the criteria for one or more credits, or is a correct response that was obtained by an obviously incorrect procedure.

(30) **[2]** A complete and correct explanation is written.

[1] An appropriate explanation is written, but one conceptual error is made.

or

[1] An appropriate explanation is written, but it is incomplete or partially correct.

[0] A zero response does not contain enough relevant course-level work to receive any credit, does not satisfy the criteria for one or more credits, or is a correct response that was obtained by an obviously incorrect procedure.

(31) **[2]** 182, and correct work is shown.

[1] Appropriate work is shown, but one computational or rounding error is made.

or

[1] Appropriate work is shown, but one conceptual error is made.

or

[1] Correct work is shown to determine the volume of the pyramid, but no further correct work is shown.

or

[1] 182, but no work is shown.

[0] A zero response does not contain enough relevant course-level work to receive any credit, does not satisfy the criteria for one or more credits, or is a correct response that was obtained by an obviously incorrect procedure.

Part III

For each question, use the specific criteria to award a maximum of 4 credits. Unless otherwise specified, mathematically correct alternative solutions should be awarded appropriate credit.

(32) **[4]** 349, and correct work is shown.

[3] Appropriate work is shown, but one computational or rounding error is made.

or

[3] Correct work is shown to find both horizontal distances, but no further correct work is shown.

[2] Appropriate work is shown, but two or more computational or rounding errors are made.

or

[2] Appropriate work is shown, but one conceptual error is made.

or

[2] Correct work is shown to find one horizontal distance, but no further correct work is shown.

[1] Appropriate work is shown, but one conceptual error and one computational or rounding error are made.

or

[1] At least one correct relevant trigonometric equation is written, but no further correct work is shown.

or

[1] 349, but no work is shown.

[0] A zero response does not contain enough relevant course-level work to receive any credit, does not satisfy the criteria for one or more credits, or is a correct response that was obtained by an obviously incorrect procedure.

(33) **[4]** Correct work is shown to prove quadrilateral *ABCD* is an isosceles trapezoid, and correct concluding statements are written.

[3] Appropriate work is shown, but one computational or graphing error is made. Appropriate concluding statements are written.

or

[3] Correct work is shown to prove *ABCD* is an isosceles trapezoid, but one concluding statement is missing or incorrect.

[2] Appropriate work is shown, but two or more computational or graphing errors are made. Appropriate concluding statements are written.

or

[2] Appropriate work is shown, but one conceptual error is made. Appropriate concluding statements are written.

or

[2] Correct work is shown to prove *ABCD* is a trapezoid and a correct concluding statement is made. No further correct work is shown.

[1] Appropriate work is shown, but one conceptual error and one computational or graphing error are made.

or

[1] Correct work is shown to prove *ABCD* is a trapezoid, but the concluding statement is missing or incorrect.

or

[1] Correct work is shown to prove $\overline{AC} \cong \overline{BD}$, but the concluding statement is missing or incorrect.

[0] A zero response does not contain enough relevant course-level work to receive any credit, does not satisfy the criteria for one or more credits, or is a correct response that was obtained by an obviously incorrect procedure.

(34) **[4]** 15, and correct work is shown.

[3] Appropriate work is shown, but one computational or rounding error is made.

or

[3] Correct work is shown to find the weight of one decoration or the volume of six decorations in cubic feet, but no further correct work is shown.

[2] Appropriate work is shown, but two or more computational or rounding errors are made.

or

[2] Appropriate work is shown, but one conceptual error is made.

or

[2] Correct work is shown to find the volume of one decoration in cubic feet or the volume of six decorations in cubic inches, but no further correct work is shown.

[1] Appropriate work is shown, but one conceptual error and one computational or rounding error are made.

or

[1] Correct work is shown to find the volume of one decoration in cubic inches, but no further correct work is shown.

or

[1] 15, but no work is shown.

[0] A zero response does not contain enough relevant course-level work to receive any credit, does not satisfy the criteria for one or more credits, or is a correct response that was obtained by an obviously incorrect procedure.

Part IV

For this question, use the specific criteria to award a maximum of 6 credits. Unless otherwise specified, mathematically correct alternative solutions should be awarded appropriate credit.

(35) **[6]** A complete and correct proof that includes a concluding statement is written.

[5] A proof is written that demonstrates a thorough understanding of the method of proof and contains no conceptual errors, but one statement and/or reason is missing or incorrect.

[4] A proof is written that demonstrates a good understanding of the method of proof and contains no conceptual errors, but two statements and/or reasons are missing or incorrect.

or

[4] A proof is written that demonstrates a good understanding of the method of proof, but one conceptual error is made.

[3] A proof is written that demonstrates a method of proof, but three statements and/or reasons are missing or incorrect.

or

[3] A proof is written that demonstrates a method of proof, but one conceptual error is made, and one statement and/or reason is missing or incorrect.

[2] A proof is written that demonstrates a good understanding of the method of proof, but two conceptual errors are made.

or

[2] Some correct relevant statements about the proof are made, but four or more statements and/or reasons are missing or incorrect.

or

[2] $\triangle EHO \cong \triangle OPE$ is proven, but no further correct work is shown.

[1] Only one correct relevant statement and reason are written.

[0] The "given" and/or the "prove" statements are rewritten in the style of a formal proof, but no further correct relevant statements are written.

or

[0] A zero response does not contain enough relevant course-level work to receive any credit, does not satisfy the criteria for one or more credits, or is a correct response that was obtained by an obviously incorrect procedure.

Map to the Learning Standards
Geometry
August 2024

Question	Type	Credits	Cluster
1	Multiple Choice	2	G-CO.B
2	Multiple Choice	2	G-GPE.B
3	Multiple Choice	2	G-SRT.C
4	Multiple Choice	2	G-CO.C
5	Multiple Choice	2	G-SRT.B
6	Multiple Choice	2	G-SRT.C
7	Multiple Choice	2	G-CO.C
8	Multiple Choice	2	G-SRT.B
9	Multiple Choice	2	G-SRT.C
10	Multiple Choice	2	G-CO.C
11	Multiple Choice	2	G-GMD.A
12	Multiple Choice	2	G-SRT.A
13	Multiple Choice	2	G-CO.A
14	Multiple Choice	2	G-MG.A
15	Multiple Choice	2	G-CO.A
16	Multiple Choice	2	G-GPE.A
17	Multiple Choice	2	G-SRT.A
18	Multiple Choice	2	G-GPE.B
19	Multiple Choice	2	G-SRT.B
20	Multiple Choice	2	G-SRT.A
21	Multiple Choice	2	G-C.A
22	Multiple Choice	2	G-GMD.B
23	Multiple Choice	2	G-MG.A
24	Multiple Choice	2	G-C.B
25	Constructed Response	2	G-SRT.B
26	Constructed Response	2	G-CO.D
27	Constructed Response	2	G-GPE.B
28	Constructed Response	2	G-SRT.C
29	Constructed Response	2	G-SRT.B
30	Constructed Response	2	G-CO.B
31	Constructed Response	2	G-MG.A
32	Constructed Response	4	G-SRT.C
33	Constructed Response	4	G-GPE.B
34	Constructed Response	4	G-MG.A
35	Constructed Response	6	G-CO.C

Regents Examination in Geometry

August 2024

Chart for Converting Total Test Raw Scores to Final Examination Scores (Scale Scores)

The *Chart for Determining the Final Examination Score for the August 2024 Regents Examination in Geometry* will be posted on the Department's web site at: https://www.nysed.gov/state-assessment/high-school-regents-examinations on Tuesday, August 20, 2024. Conversion charts provided for previous administrations of the Regents Examination in Geometry must NOT be used to determine students' final scores for this administration.

Online Submission of Teacher Evaluations of the Test to the Department

Suggestions and feedback from teachers provide an important contribution to the test development process. The Department provides an online evaluation form for State assessments. It contains spaces for teachers to respond to several specific questions and to make suggestions. Instructions for completing the evaluation form are as follows:

1. Go to https://www.nysed.gov/state-assessment/teacher-feedback-state-assessments.

2. Select the test title.

3. Complete the required demographic fields.

4. Complete each evaluation question and provide comments in the space provided.

5. Click the SUBMIT button at the bottom of the page to submit the completed form.

The University of the State of New York

REGENTS HIGH SCHOOL EXAMINATION

GEOMETRY

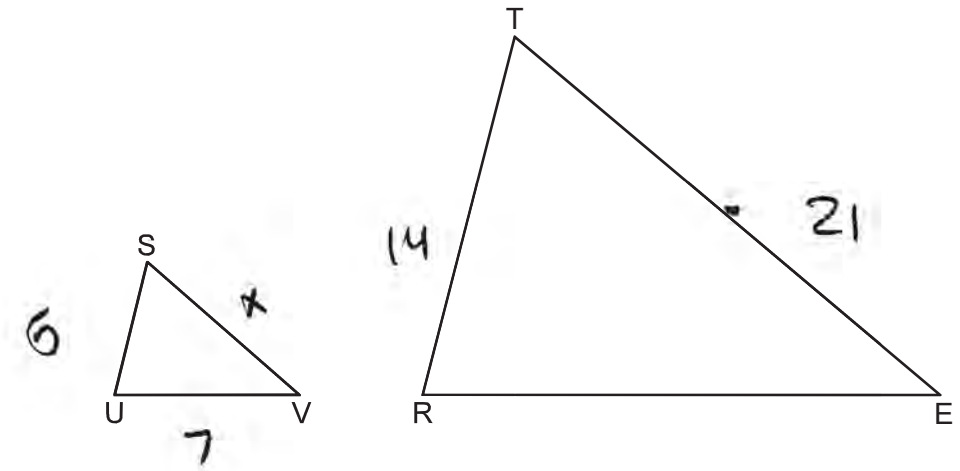
Tuesday, August 20, 2024 — 12:30 to 3:30 p.m., only

MODEL RESPONSE SET

Table of Contents

Question 25

25 In the diagram below, $\triangle SUV \sim \triangle TRE$.



If $SU = 5$, $UV = 7$, $TR = 14$, and $TE = 21$, determine and state the length of $\overline{SV}$.

$\frac{5}{14} = \frac{x}{21}$

$\frac{14x}{14} = \frac{106}{14}$

$x = 7.5$

7.5

Check

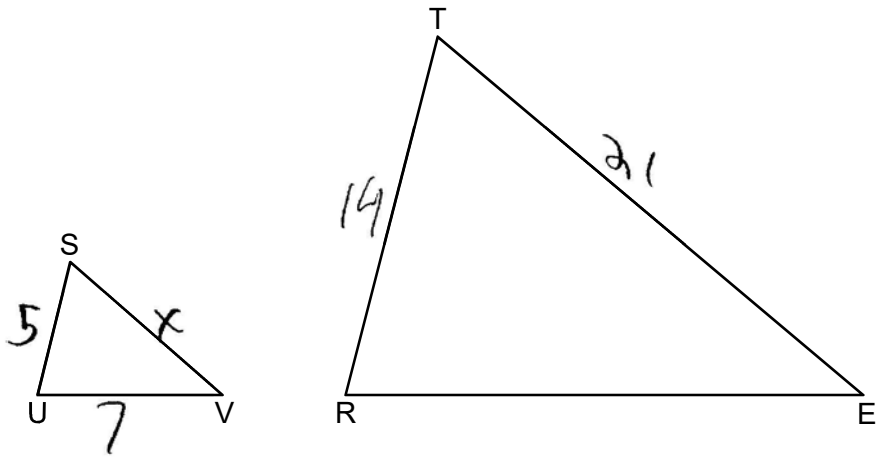
$\frac{14}{5} = 2.8$

$7.5 * 2.8 = 21$

Score 2: The student gave a complete and correct response.

Question 25

25 In the diagram below, $\triangle SUV \sim \triangle TRE$.



If $SU = 5$, $UV = 7$, $TR = 14$, and $TE = 21$, determine and state the length of $\overline{SV}$.

$\frac{x}{5} = \frac{21}{14}$

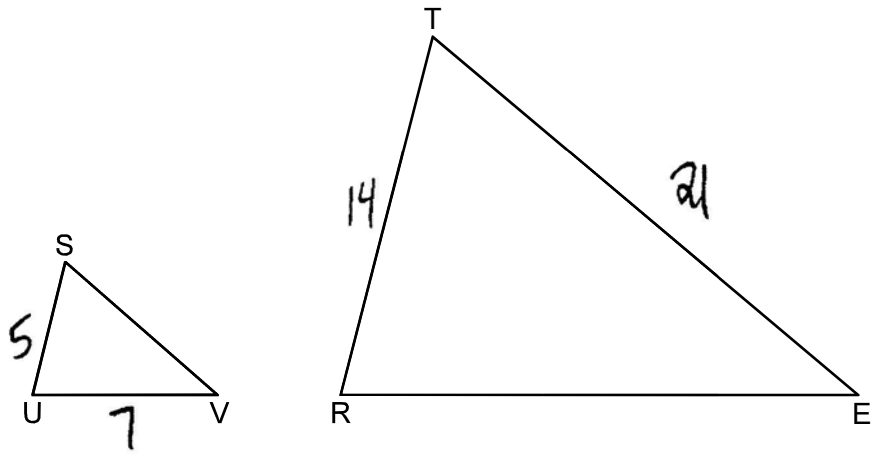
$\frac{14x}{14} = \frac{105}{14}$

$x = 7\frac{1}{2}$

Score 2: The student gave a complete and correct response.

Question 25

25 In the diagram below, $\triangle SUV \sim \triangle TRE$.



If $SU = 5$, $UV = 7$, $TR = 14$, and $TE = 21$, determine and state the length of $\overline{SV}$.

14÷5=28

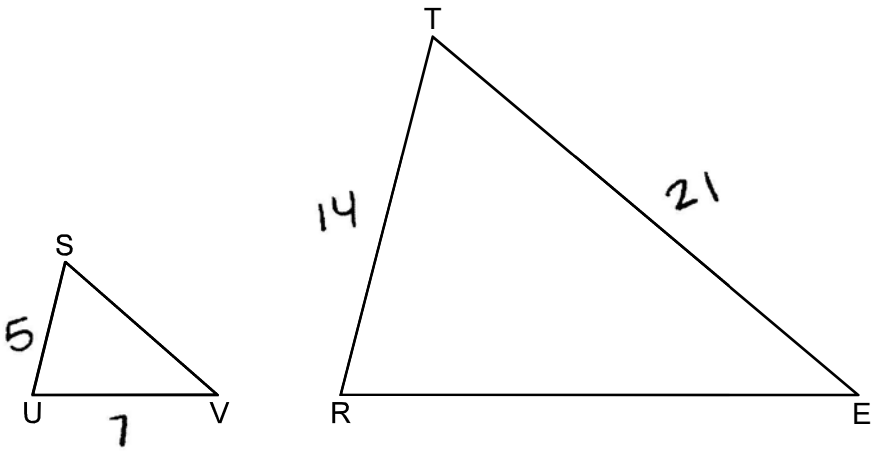
21÷2.8=7.5

SV=7.5

Score 2: The student gave a complete and correct response.

Question 25

25 In the diagram below, $\triangle SUV \sim \triangle TRE$.



If $SU = 5$, $UV = 7$, $TR = 14$, and $TE = 21$, determine and state the length of $\overline{SV}$.

corresponding parts of ~Δ's are proportional $\frac{5}{14} = \frac{x}{21}$

$\frac{14x}{14} = \frac{315}{14}$

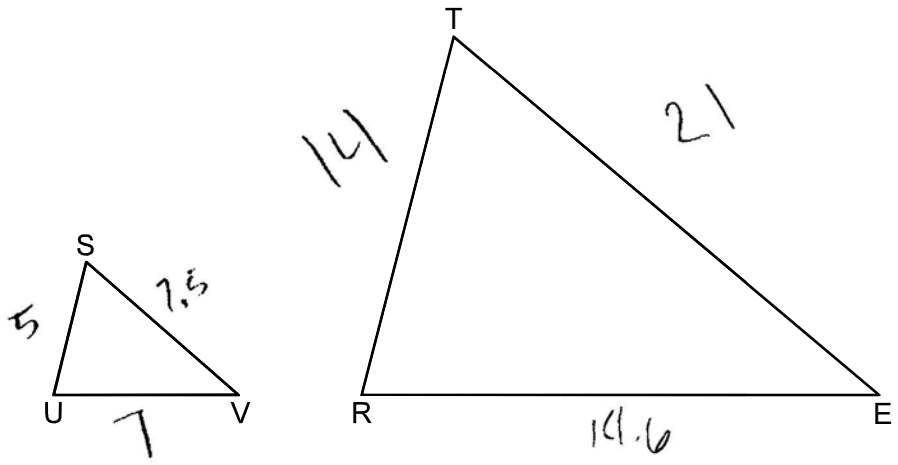
$x = 22.5$

SV = 22.5

Score 1: The student made a computational error.

Question 25

25 In the diagram below, $\triangle SUV \sim \triangle TRE$.

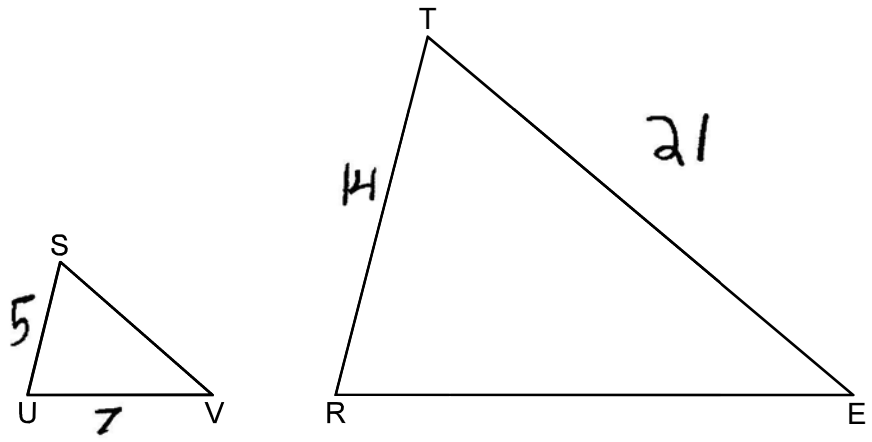


If $SU = 5$, $UV = 7$, $TR = 14$, and $TE = 21$, determine and state the length of $\overline{SV}$.

Score 1: The student correctly determined the length of $\overline{SV}$, but did not show work.

Question 25

25 In the diagram below, $\triangle SUV \sim \triangle TRE$.



If $SU = 5$, $UV = 7$, $TR = 14$, and $TE = 21$, determine and state the length of $\overline{SV}$.

$5^2 + 7^2 = x^2$

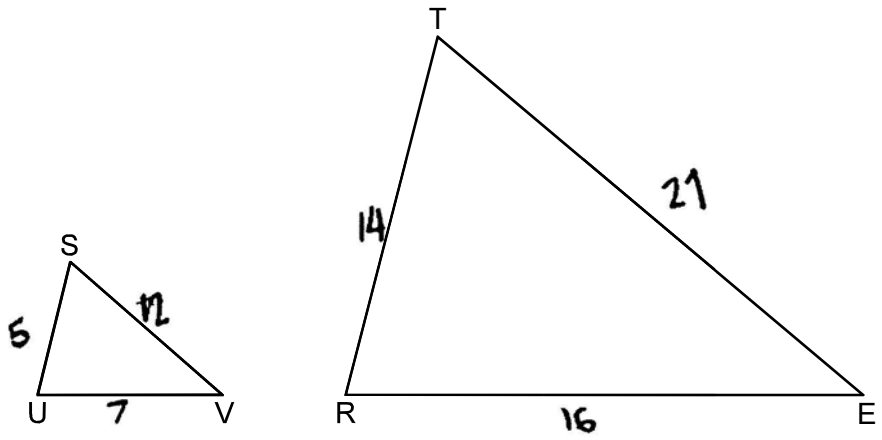
$25 + 49 = 74^2$

$\sqrt{74} = 8.6$

Score 0: The student gave a completely incorrect response.

Question 25

25 In the diagram below, $\triangle SUV \sim \triangle TRE$.



If $SU = 5$, $UV = 7$, $TR = 14$, and $TE = 21$, determine and state the length of $\overline{SV}$.

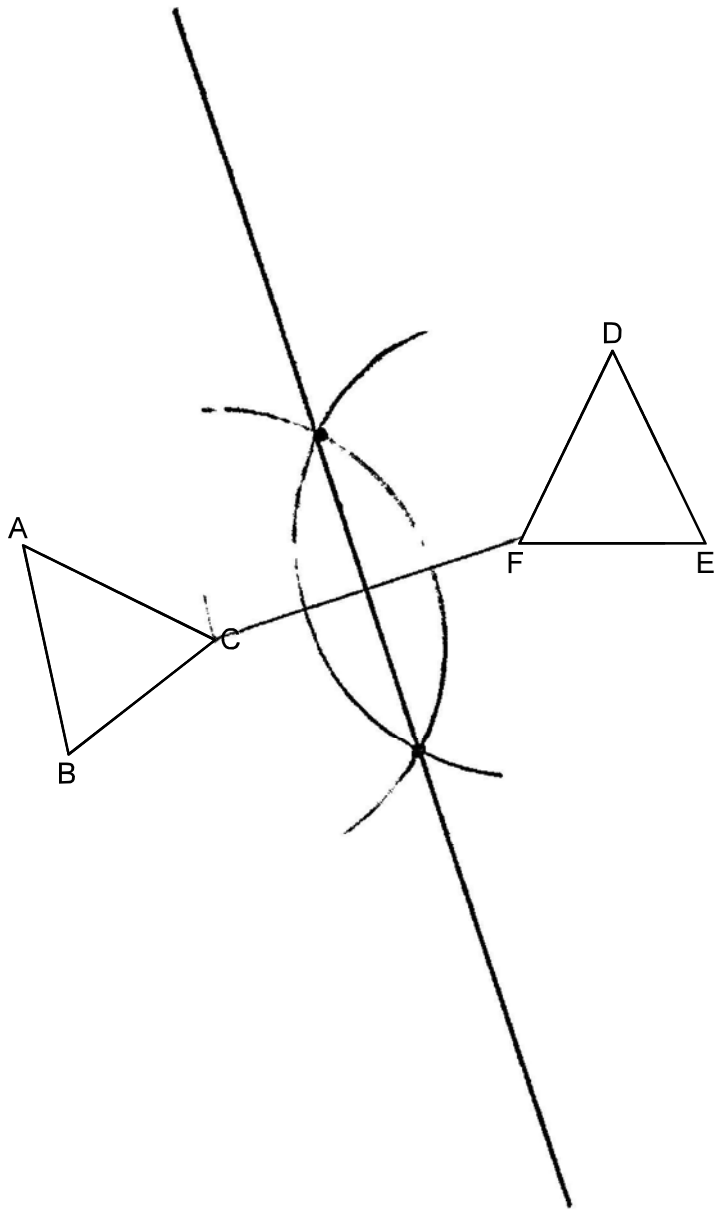
$\tan = \frac{opp}{adj} = \frac{7}{5}$

$\overline{SV} = 12$

Score 0: The student gave a completely incorrect response.

Question 26

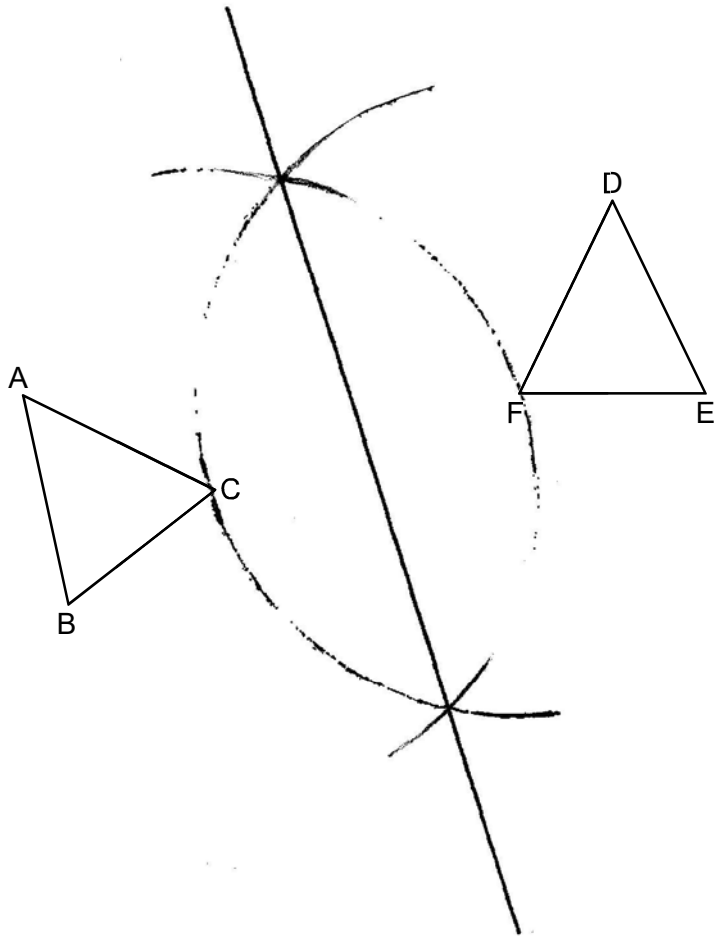
26 Using a compass and straightedge, construct the line of reflection that maps $\triangle ABC$ onto its image, $\triangle DEF$. [Leave all construction marks.]



Score 2: The student gave a complete and correct response.

Question 26

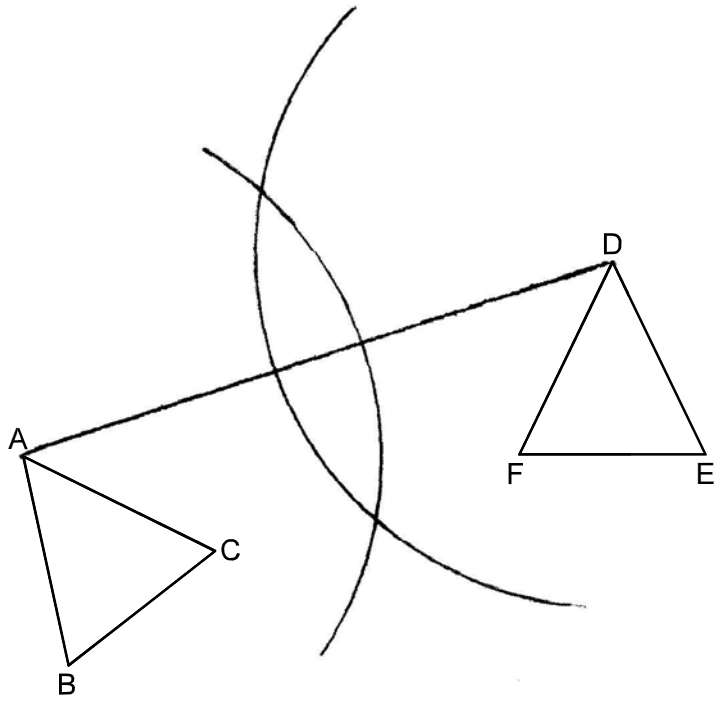
26 Using a compass and straightedge, construct the line of reflection that maps $\triangle ABC$ onto its image, $\triangle DEF$. [Leave all construction marks.]



Score 2: The student gave a complete and correct response.

Question 26

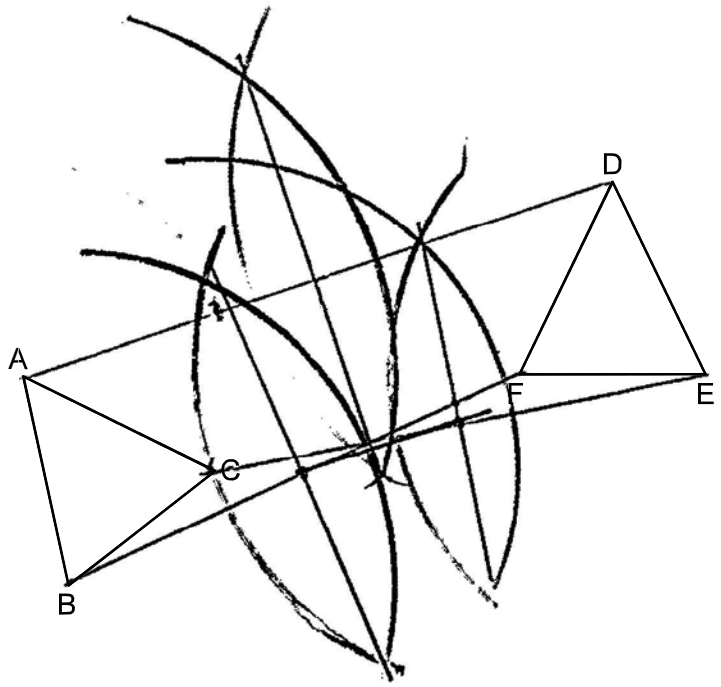
26 Using a compass and straightedge, construct the line of reflection that maps $\triangle ABC$ onto its image, $\triangle DEF$. [Leave all construction marks.]



Score 1: The student constructed all appropriate arcs, but did not draw the line of reflection.

Question 26

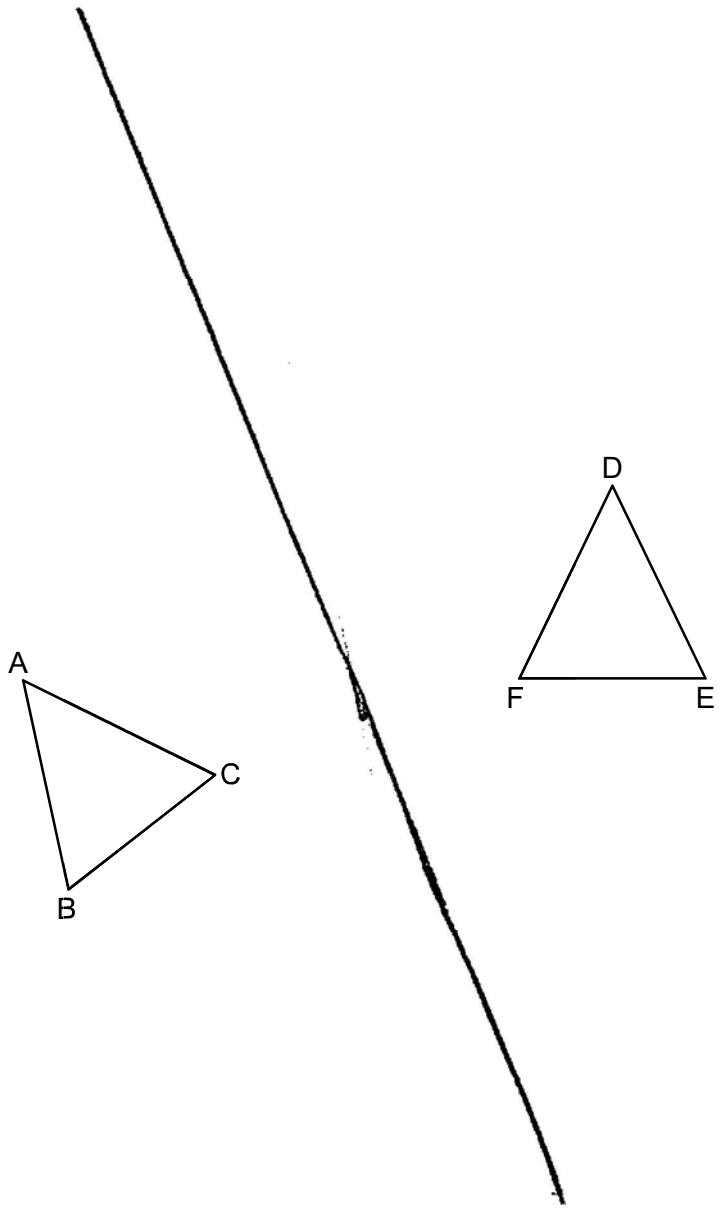
26 Using a compass and straightedge, construct the line of reflection that maps $\triangle ABC$ onto its image, $\triangle DEF$. [Leave all construction marks.]



Score 1: The student constructed a correct line of reflection of $\overline{AD}$, but also constructed two incorrect lines of reflection of $\overline{BF}$ and $\overline{CE}$.

Question 26

26 Using a compass and straightedge, construct the line of reflection that maps $\triangle ABC$ onto its image, $\triangle DEF$. [Leave all construction marks.]



Score 0: The student made a drawing that was not a construction.

Question 27

27 Triangle MAX has vertices with coordinates $M(-5,-2)$, $A(1,4)$, and $X(4,1)$.

Determine and state the area of $\triangle MAX$.

[The use of the set of axes below is optional.]

AR = 6 × 9 = 54

A1 = $\frac{6 \times 6}{2} = \frac{36}{2} = 18$

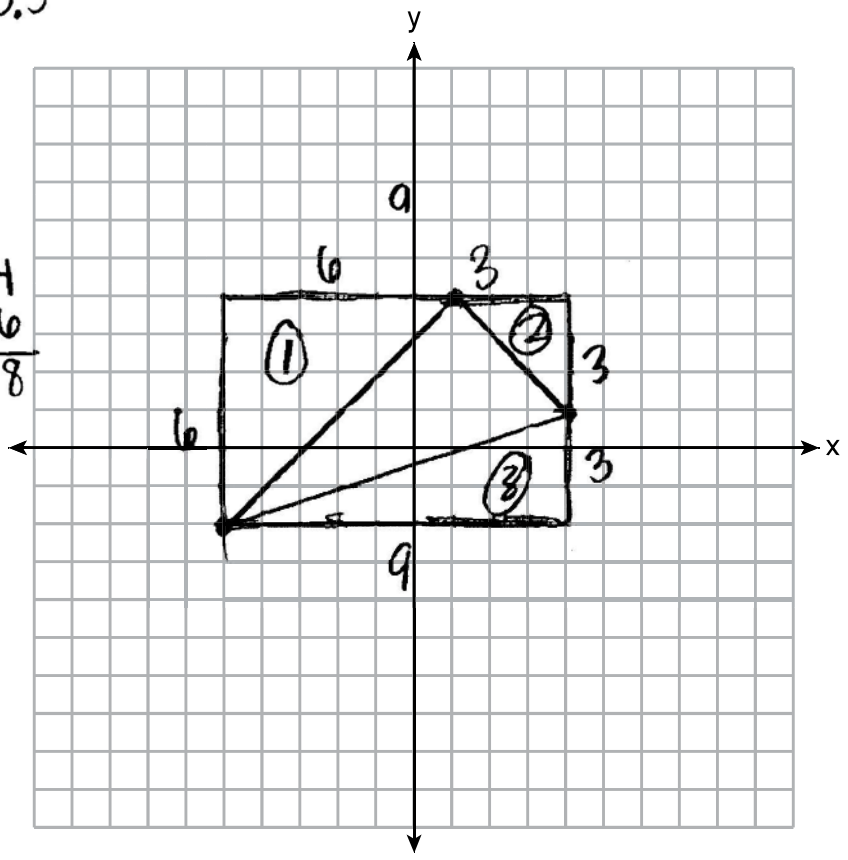
A2 = $\frac{3 \times 3}{2} = \frac{9}{2} = 4.5$

A3 = $\frac{9 \times 3}{2} = \frac{27}{2} = 13.5$

area of △MAX = 18

11
18
+13.5
+ 4.5
36.0

4
54
-36
18



Score 2: The student gave a complete and correct response.

Question 27

27 Triangle *MAX* has vertices with coordinates $M(-5,-2)$, $A(1,4)$, and $X(4,1)$.

Determine and state the area of $\triangle MAX$.

[The use of the set of axes below is optional.]

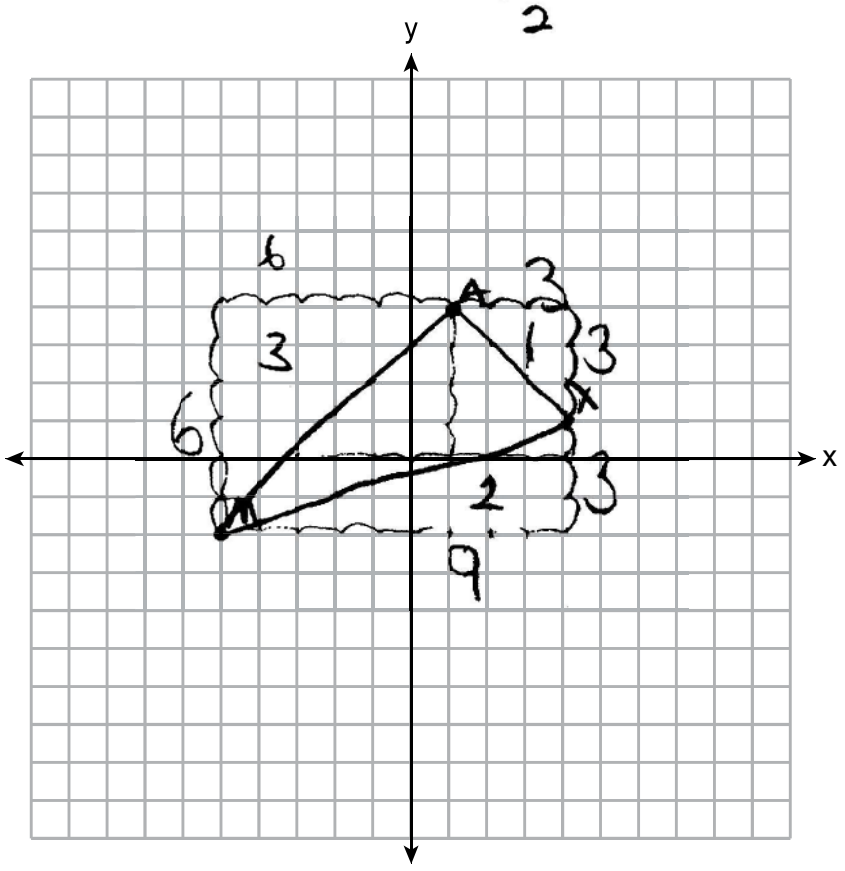
$A_{\square} = 9 \cdot 6 = 54$

$54 - 36$

$A_{\Delta 1} = \frac{3 \cdot 3}{2} = 4.5$ $A_{\Delta 3} = \frac{6 \cdot 6}{2} = 18$

18

$A_{\Delta 2} = \frac{9 \cdot 3}{2} = 13.5$



Score 2: The student gave a complete and correct response.

Question 27

27 Triangle MAX has vertices with coordinates $M(-5,-2)$, $A(1,4)$, and $X(4,1)$.

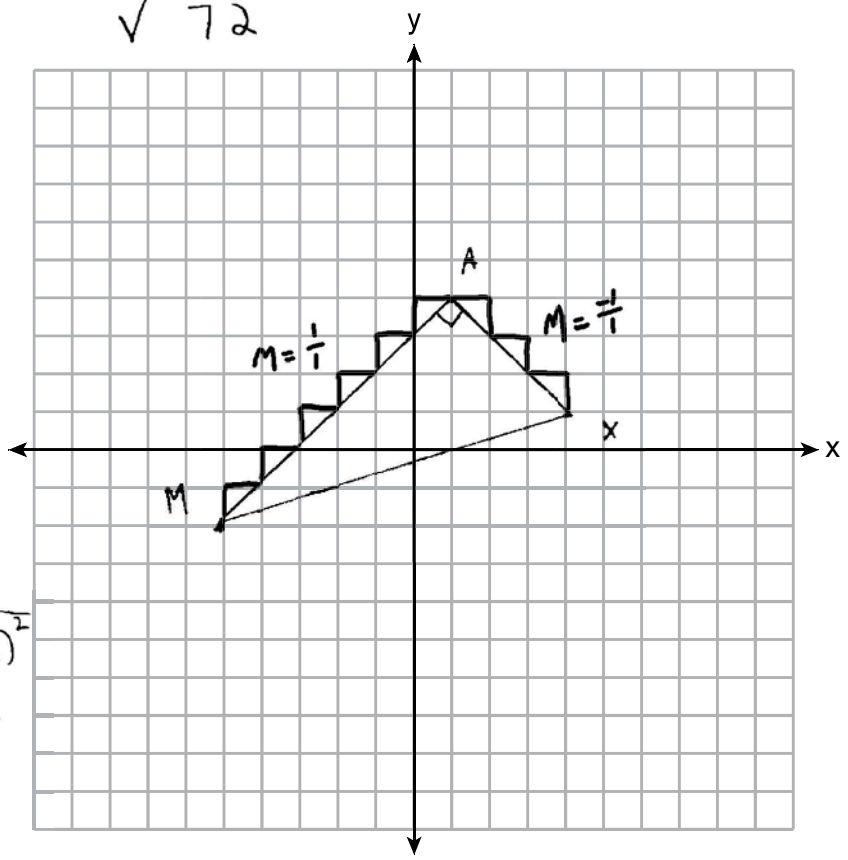
Determine and state the area of $\triangle MAX$.

[The use of the set of axes below is optional.]

$AM = \sqrt{(4+2)^2 + (1+5)^2}$

$\sqrt{36 + 36}$

$\sqrt{72}$



$A = \frac{1}{2}\sqrt{72} \cdot \sqrt{18}$

18

$AX = \sqrt{(1-4)^2 + (4-1)^2}$

$\sqrt{9 + 9}$

$\sqrt{18}$

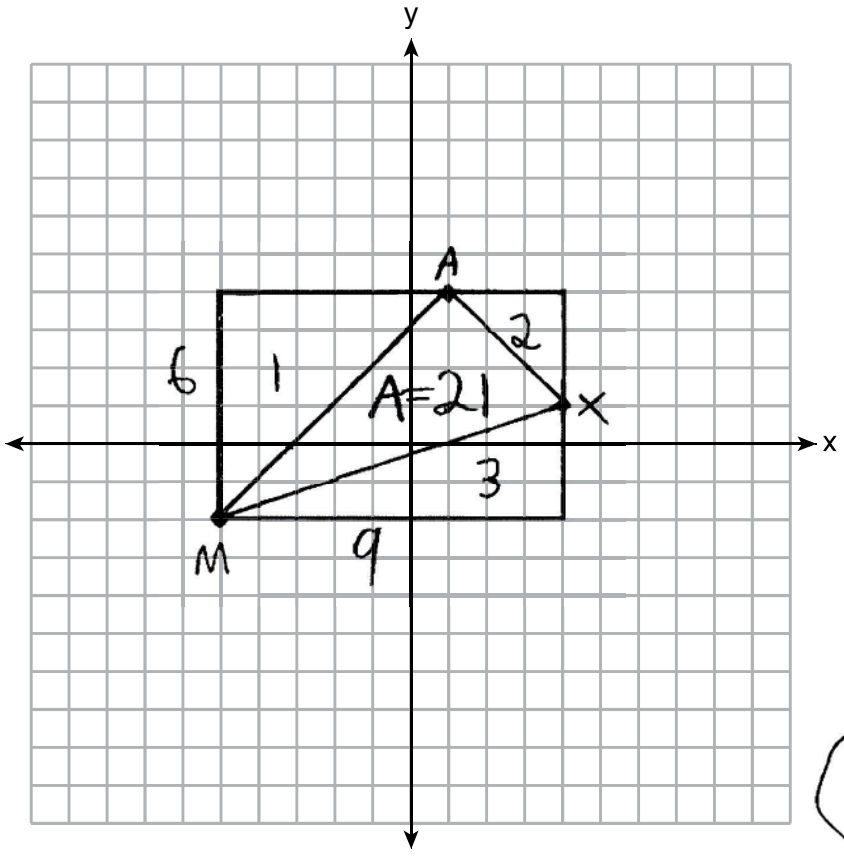
Score 2: The student gave a complete and correct response.

Question 27

27 Triangle MAX has vertices with coordinates $M(-5,-2)$, $A(1,4)$, and $X(4,1)$.

Determine and state the area of $\triangle MAX$.

[The use of the set of axes below is optional.]



$A = 6 \cdot 9$

$A = 54$

$\triangle 1 = \frac{6 \cdot 5}{2} = \frac{30}{2} = 15$

$\triangle 2 = \frac{3 \cdot 3}{2} = \frac{9}{2} = 4.5$

$\triangle 3 = \frac{9 \cdot 3}{2} = \frac{27}{2} = 13.5$

33

54

$-\ 33$

21

$\triangle MAX = 21$

Score 1: The student made a computational error when determining the area of $\triangle 1$.

Question 27

27 Triangle MAX has vertices with coordinates $M(-5,-2)$, $A(1,4)$, and $X(4,1)$.

Determine and state the area of $\triangle MAX$.

[The use of the set of axes below is optional.]

□ = 6.9 = 54

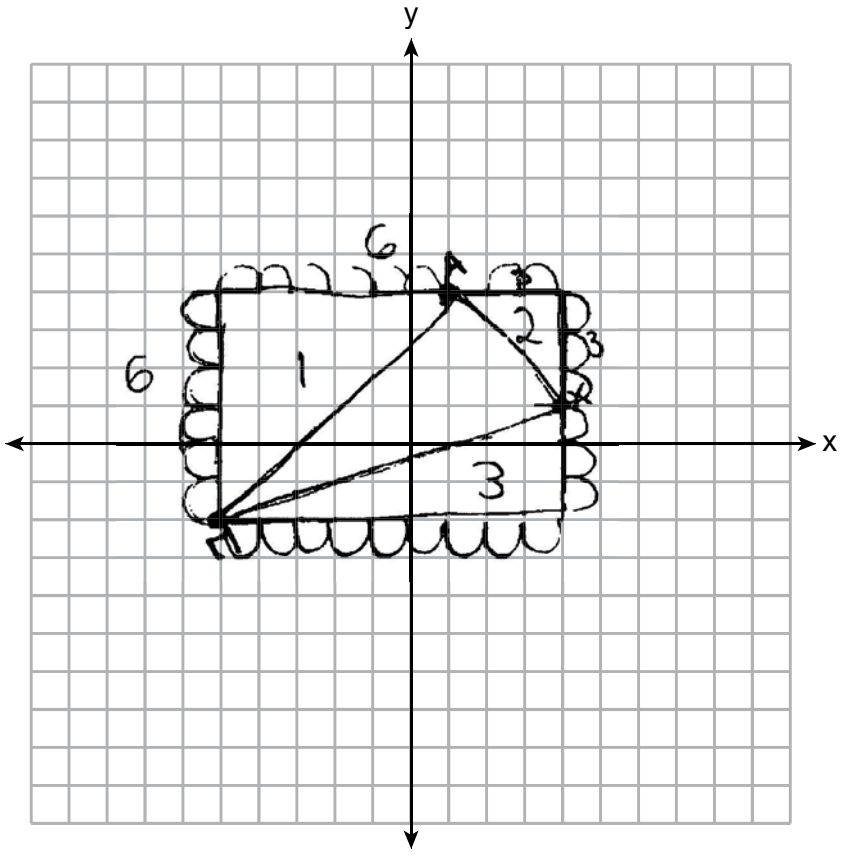
tr. 1 $(\frac{1}{2})(6)(6)$
3×6
18

tr. 2 $(\frac{1}{2})(3)(3)$
3×3=9

4.5

tr. 3
$\frac{1}{2}(9)(3)$
4.5×3

13.5



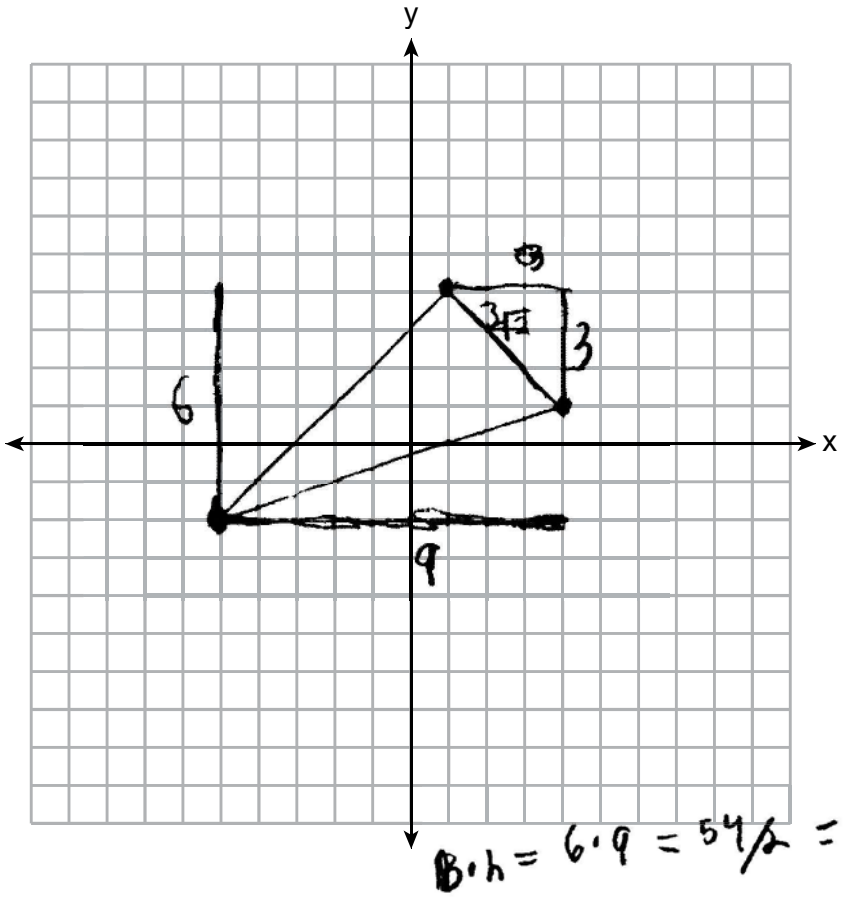
Score 1: The student determined the areas of the surrounding triangles and rectangle, but did not determine the area of $\triangle MAX$.

Question 27

27 Triangle MAX has vertices with coordinates $M(-5,-2)$, $A(1,4)$, and $X(4,1)$.

Determine and state the area of $\triangle MAX$.

[The use of the set of axes below is optional.]



Score 0: The student did not show enough correct relevant work to receive any credit.

Question 27

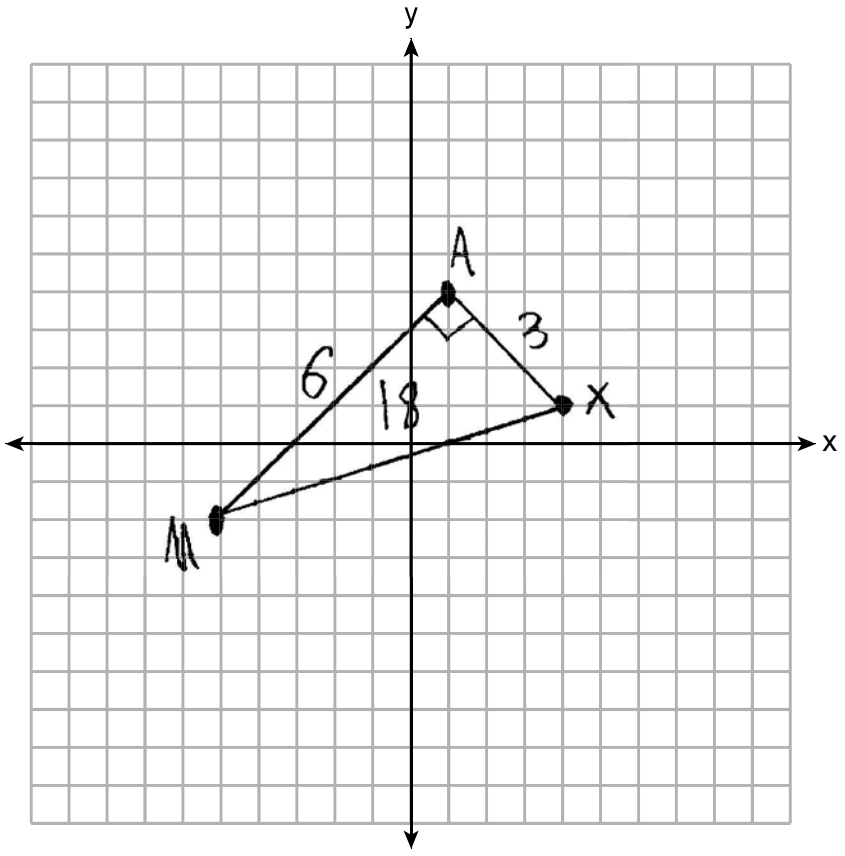
27 Triangle *MAX* has vertices with coordinates $M(-5,-2)$, $A(1,4)$, and $X(4,1)$.

Determine and state the area of $\triangle MAX$.

[The use of the set of axes below is optional.]

A = 6 · 3

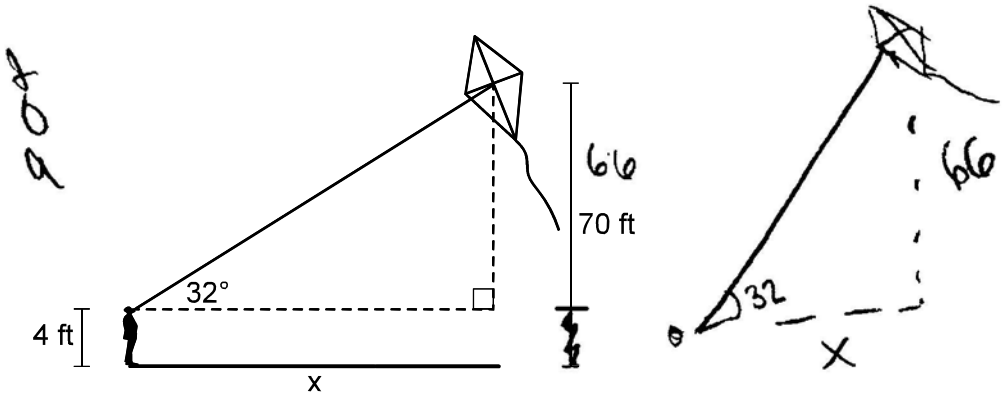
A = 18



Score 0: The student determined a correct answer by an obviously incorrect procedure.

Question 28

28 A person observes a kite at an angle of elevation of 32° from a line of sight that begins 4 feet above the ground, as modeled in the diagram below. At the moment of observation, the kite is 70 feet above the ground.



Determine and state the horizontal distance, x, between the person and the point on the ground directly below the kite, to the *nearest foot*.

$\tan(32) = \frac{66}{x}$

$x = \frac{66}{\tan(32)}$

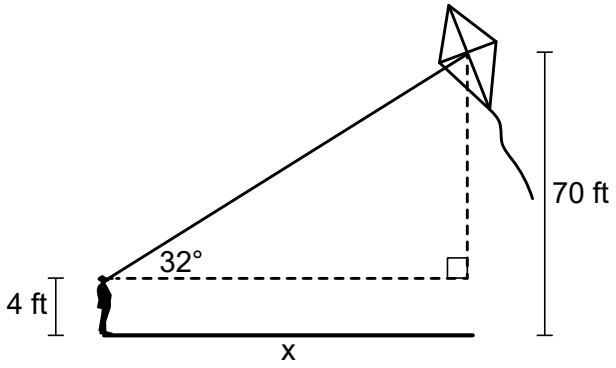
$x = 105.62$

106 ft

Score 2: The student gave a complete and correct response.

Question 28

28 A person observes a kite at an angle of elevation of 32° from a line of sight that begins 4 feet above the ground, as modeled in the diagram below. At the moment of observation, the kite is 70 feet above the ground.



Determine and state the horizontal distance, x, between the person and the point on the ground directly below the kite, to the *nearest foot*.

106 ft.

$\tan 32 = \frac{66}{x}$

$x \tan 32 = 66$

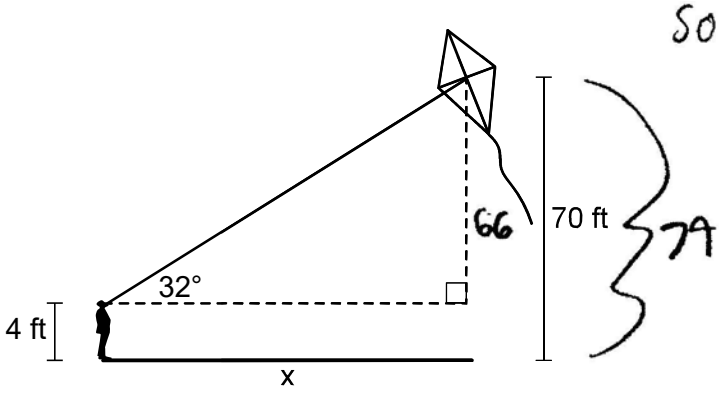
$\frac{66}{\tan 32}$

Score 2: The student gave a complete and correct response.

Question 28

28 A person observes a kite at an angle of elevation of 32° from a line of sight that begins 4 feet above the ground, as modeled in the diagram below. At the moment of observation, the kite is 70 feet above the ground.

SOH CAH TOA



Determine and state the horizontal distance, x, between the person and the point on the ground directly below the kite, to the *nearest foot*.

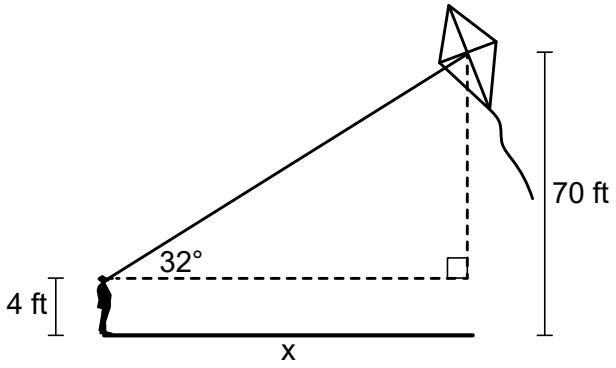
$$\frac{\tan 32}{1} = \frac{66}{x}$$

$$\frac{66}{\tan(32)} = \frac{\tan(32)x}{\tan(32)}$$

Score 1: The student wrote a correct relevant trigonometric equation.

Question 28

28 A person observes a kite at an angle of elevation of 32° from a line of sight that begins 4 feet above the ground, as modeled in the diagram below. At the moment of observation, the kite is 70 feet above the ground.



Determine and state the horizontal distance, x, between the person and the point on the ground directly below the kite, to the *nearest foot*.

SOH CAH TOA

tan(32 = 0.6248693519

$\frac{0.6249}{1} = \frac{70}{x}$

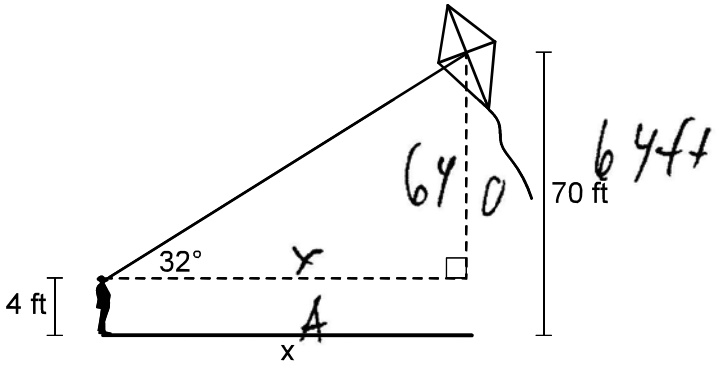
$\frac{70}{0.6249} = \frac{0.6249x}{0.6249}$

112 = x

Score 1: The student wrote an incorrect trigonometric equation, but found an appropriate answer.

Question 28

28 A person observes a kite at an angle of elevation of 32° from a line of sight that begins 4 feet above the ground, as modeled in the diagram below. At the moment of observation, the kite is 70 feet above the ground.



Determine and state the horizontal distance, x, between the person and the point on the ground directly below the kite, to the *nearest foot*.

$$\frac{\tan 32}{1} = \frac{64}{x}$$

$$\frac{\tan 32 x}{\tan 32} = \frac{64}{\tan 32}$$

$$x =$$

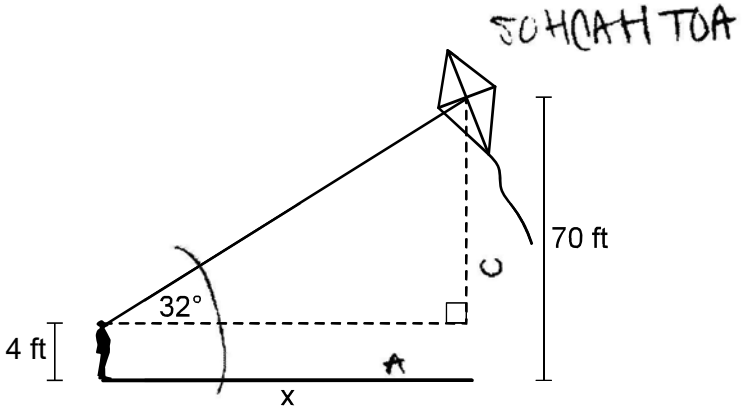
$$102.421$$

$$x = 102 \text{ ft}$$

Score 1: The student made a computational error.

Question 28

28 A person observes a kite at an angle of elevation of 32° from a line of sight that begins 4 feet above the ground, as modeled in the diagram below. At the moment of observation, the kite is 70 feet above the ground.



Determine and state the horizontal distance, x, between the person and the point on the ground directly below the kite, to the *nearest foot*.

$\tan\theta = \frac{O}{A}$

$70 \cdot \tan(32) = \frac{70}{x} \cdot 70$

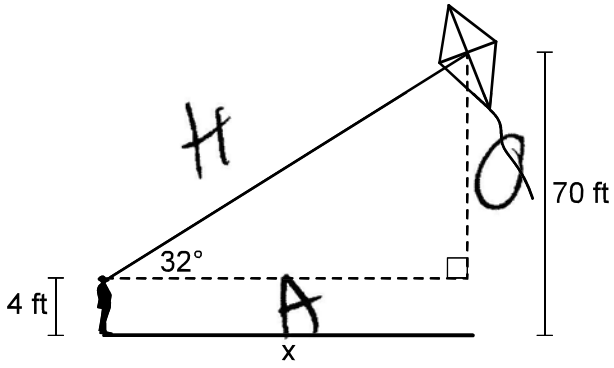
$x = 43.74085463$

$x = 43.7$

Score 0: The student wrote an incorrect trigonometric equation and solved it incorrectly.

Question 28

28 A person observes a kite at an angle of elevation of 32° from a line of sight that begins 4 feet above the ground, as modeled in the diagram below. At the moment of observation, the kite is 70 feet above the ground.



Determine and state the horizontal distance, x, between the person and the point on the ground directly below the kite, to the *nearest foot*.

$\frac{\tan(32)}{1} = \frac{70}{x}$

$\frac{70}{\tan(32)} = \frac{\tan(32)(x)}{\tan(32)}$

112.023 feet

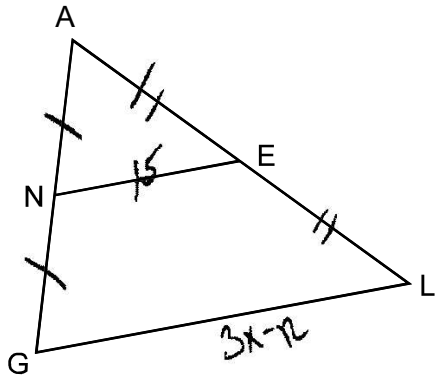
112.023 + 4 = 116.023

116.023 feet

Score 0: The student wrote an incorrect trigonometric equation, made an error adding 4 to the distance, and made a rounding error.

Question 29

29 In $\triangle AGL$ below, N and E are the midpoints of $\overline{AG}$ and $\overline{AL}$, respectively, $\overline{NE}$ is drawn.



If $NE = 15$ and $GL = 3x - 12$, determine and state the value of x.

$3x - 12 = 15 \cdot 2$

$3x - 12 = 30$

$+12 \quad +12$

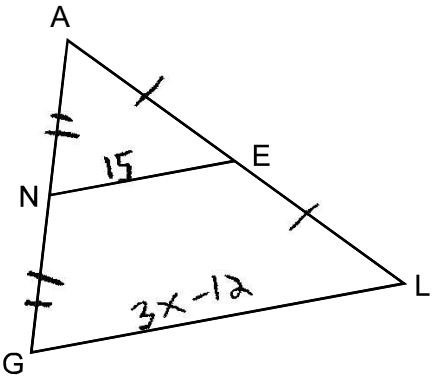
$\frac{3x}{3} = \frac{42}{3}$

$x = 14$

Score 2: The student gave a complete and correct response.

Question 29

29 In $\triangle AGL$ below, N and E are the midpoints of $\overline{AG}$ and $\overline{AL}$, respectively, $\overline{NE}$ is drawn.



If $NE = 15$ and $GL = 3x - 12$, determine and state the value of x.

$\frac{3x-12}{2} = 15$

or

$15 \cdot 2 = 3x - 12$

$30 = 3x - 12$

$+12 \quad +12$

$42 = 3x$

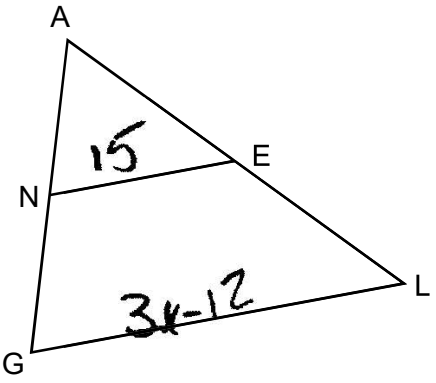
$\frac{42}{3} = \frac{3x}{3}$

$x = 14$

Score 2: The student gave a complete and correct response.

Question 29

29 In $\triangle AGL$ below, N and E are the midpoints of $\overline{AG}$ and $\overline{AL}$, respectively, $\overline{NE}$ is drawn.



If $NE = 15$ and $GL = 3x - 12$, determine and state the value of x.

$3x - 12 = (15)2$

$3x - 12 = 30$

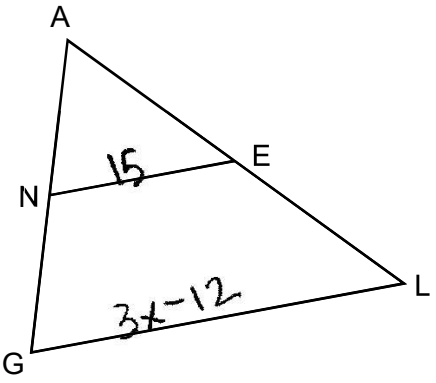
$3x = 18$

$x = 6$

Score 1: The student made a computational error.

Question 29

29 In $\triangle AGL$ below, N and E are the midpoints of $\overline{AG}$ and $\overline{AL}$, respectively, $\overline{NE}$ is drawn.



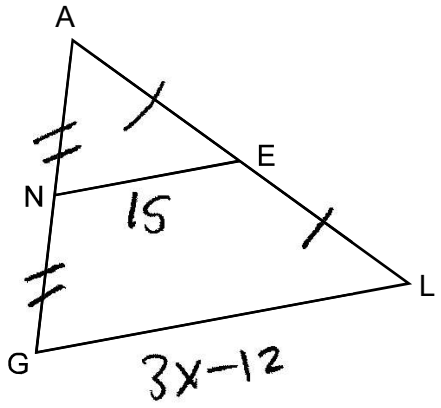
If $NE = 15$ and $GL = 3x - 12$, determine and state the value of x.

$3x - 12 = 15$
$+12 \quad +12$
$\frac{3x}{3} = \frac{27}{3}$
$x = 9$

Score 1: The student made a conceptual error, but found an appropriate answer.

Question 29

29 In $\triangle AGL$ below, N and E are the midpoints of $\overline{AG}$ and $\overline{AL}$, respectively, $\overline{NE}$ is drawn.



If $NE = 15$ and $GL = 3x - 12$, determine and state the value of x.

$3x-12=\frac{1}{2}(15)$

$3x-12=7.5$

$+12 \quad +12$

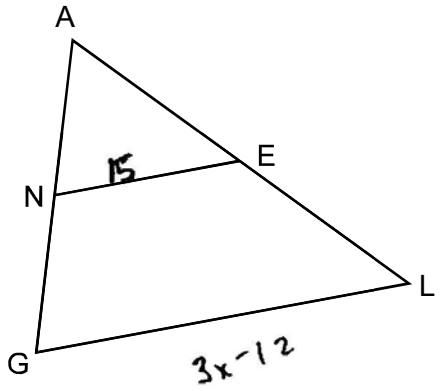
$\frac{3x}{3}=\frac{19.5}{3}$

$x=6.5$

Score 1: The student made a conceptual error, but found an appropriate answer.

Question 29

29 In $\triangle AGL$ below, N and E are the midpoints of $\overline{AG}$ and $\overline{AL}$, respectively, $\overline{NE}$ is drawn.



If $NE = 15$ and $GL = 3x - 12$, determine and state the value of x.

$12 = 3x - 12$

$+12 \qquad +12$

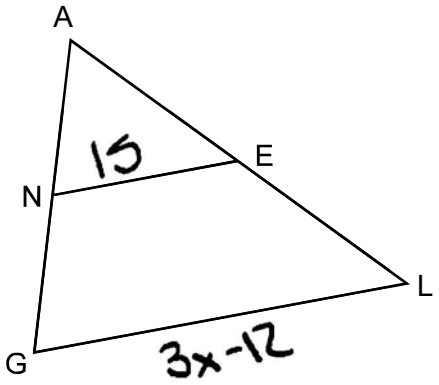
$\frac{24}{3} = \frac{3x}{3}$

$8 = x$

Score 0: The student made one conceptual error and one transcription error.

Question 29

29 In $\triangle AGL$ below, N and E are the midpoints of $\overline{AG}$ and $\overline{AL}$, respectively, $\overline{NE}$ is drawn.



If $NE = 15$ and $GL = 3x - 12$, determine and state the value of x.

$3x-12+15=180$

$3x+3=180$

$-3 \quad -3$

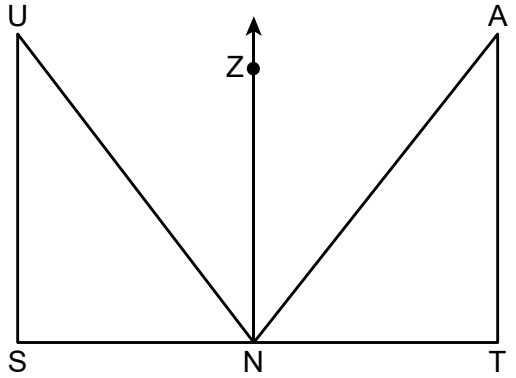
$\frac{3x}{3} = \frac{177}{3}$

$x=59$

Score 0: The student did not show enough correct relevant course-level work to receive any credit.

Question 30

30 In the diagram below, $\triangle TAN$ is the image of $\triangle SUN$ after a reflection over $\overrightarrow{NZ}$.



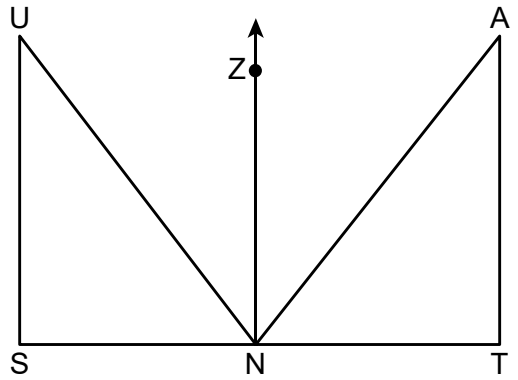
Use the properties of rigid motions to explain why $\triangle TAN \cong \triangle SUN$.

△TAN ≅ △SUN Because only a reflection was made, the rigid motion reflection preserves all side lengths and angle measurements.

Score 2: The student gave a complete and correct response.

Question 30

30 In the diagram below, $\triangle TAN$ is the image of $\triangle SUN$ after a reflection over $\overleftrightarrow{NZ}$.



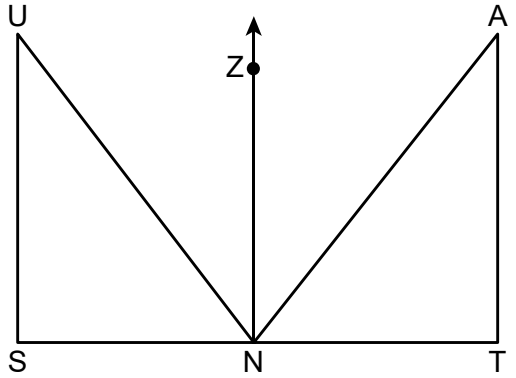
Use the properties of rigid motions to explain why $\triangle TAN \cong \triangle SUN$.

Rigid motions preserve $\angle$ measure and side measure, and reflections are rigid motions.

Score 2: The student gave a complete and correct response.

Question 30

30 In the diagram below, $\triangle TAN$ is the image of $\triangle SUN$ after a reflection over $\overrightarrow{NZ}$.



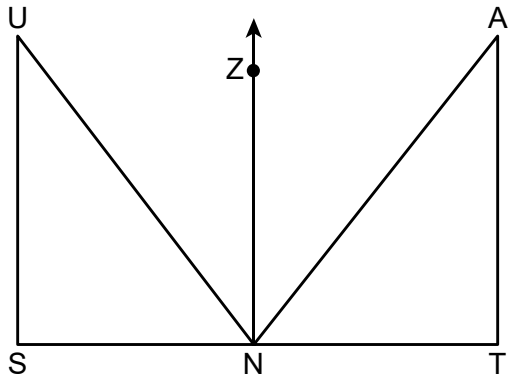
Use the properties of rigid motions to explain why $\triangle TAN \cong \triangle SUN$.

$\triangle TAN \cong \triangle SUN$ because a reflection is a rigid motion which means it perserves size and shape.

Score 1: The student wrote an incomplete explanation.

Question 30

30 In the diagram below, $\triangle TAN$ is the image of $\triangle SUN$ after a reflection over $\overleftrightarrow{NZ}$.



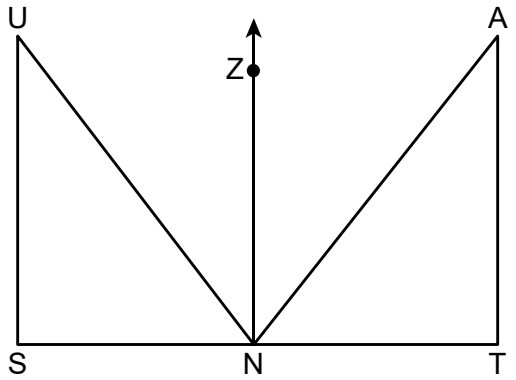
Use the properties of rigid motions to explain why $\triangle TAN \cong \triangle SUN$.

△TAN ≅ △SUN b/c it was reflected over the line NZ ∴ the distances between points didn't change only orientation.

Score 1: The student wrote an incomplete explanation.

Question 30

30 In the diagram below, $\triangle TAN$ is the image of $\triangle SUN$ after a reflection over $\overleftrightarrow{NZ}$.



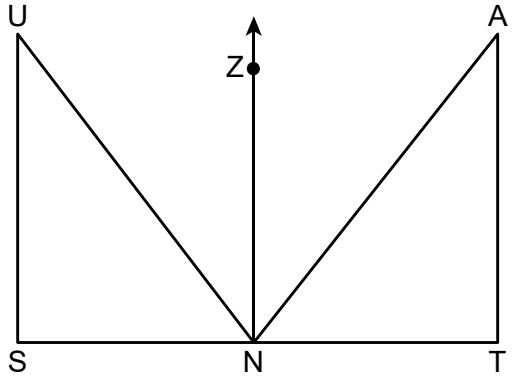
Use the properties of rigid motions to explain why $\triangle TAN \cong \triangle SUN$.

Using the properties of rigid motion $\triangle TAN \cong \triangle SUN$ because of translation | reflection. $\angle A$ and $\angle U$ are congruent

Score 0: The student wrote an incorrect explanation.

Question 30

30 In the diagram below, $\triangle TAN$ is the image of $\triangle SUN$ after a reflection over $\overline{NZ}$.



Use the properties of rigid motions to explain why $\triangle TAN \cong \triangle SUN$.

The only rigid motion that changes ~~size~~ is dialation because you have to multiply. In a reflection, you just flip the shape.

Score 0: The student wrote an incorrect explanation.

Question 31

31 A pyramid with a square base is made of solid glass. The pyramid has a base with a side length of 5.7 cm and a height of 7 cm. The density of the glass is 2.4 grams per cubic centimeter.

Determine and state, to the *nearest gram*, the mass of the pyramid.

$V = \frac{1}{3}Bh$

$V = \frac{1}{3}(5.7)^2 \cdot 7$

$V = 75.81$

$75.81 \times 2.4 = 181.944$

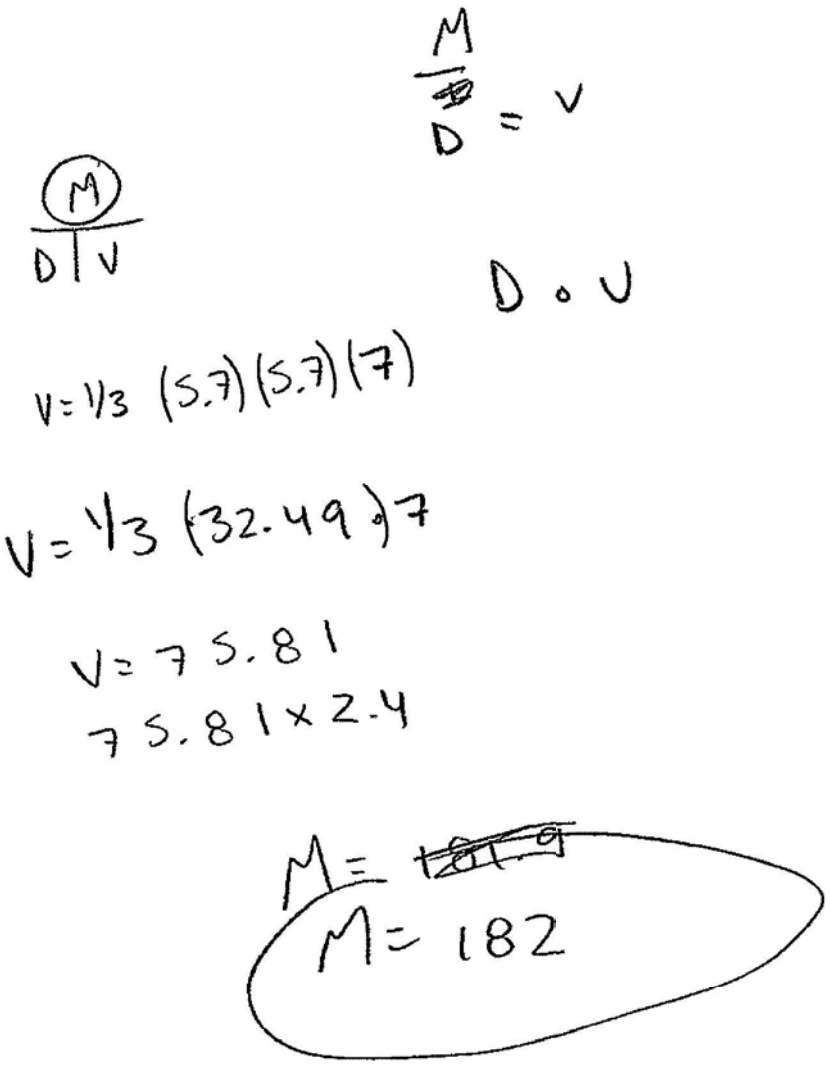
182 g.

Score 2: The student gave a complete and correct response.

Question 31

31 A pyramid with a square base is made of solid glass. The pyramid has a base with a side length of 5.7 cm and a height of 7 cm. The density of the glass is 2.4 grams per cubic centimeter.

Determine and state, to the *nearest gram*, the mass of the pyramid.

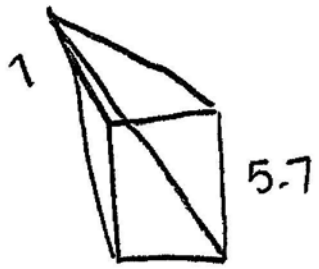


Score 2: The student gave a complete and correct response.

Question 31

31 A pyramid with a square base is made of solid glass. The pyramid has a base with a side length of 5.7 cm and a height of 7 cm. The density of the glass is 2.4 grams per cubic centimeter.

Determine and state, to the *nearest gram*, the mass of the pyramid.



D M V

$M = \frac{D}{V}\frac{V}{D}$

$M = \frac{75.81}{2.4}$

$V = \frac{1}{3}Bh$

$V = \frac{1}{3}(5.7)^2(7)$

$V = 75.81$

31.5875

32 grams

Score 1: The student made a computational error when determining the mass.

Question 31

31 A pyramid with a square base is made of solid glass. The pyramid has a base with a side length of 5.7 cm and a height of 7 cm. The density of the glass is 2.4 grams per cubic centimeter.

Determine and state, to the *nearest gram*, the mass of the pyramid.

$D = \frac{m}{v}$ so $m = Dv$

$V = \frac{1}{3}bh$

$\frac{1}{3}(5.7 \cdot 7)$

13.3

2.4
× 13.3
31.92

The mass of the pyramid is 32 grams.

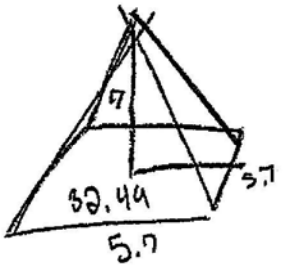
Score 1: The student made an error when determining the volume, but found an appropriate mass.

Question 31

31 A pyramid with a square base is made of solid glass. The pyramid has a base with a side length of 5.7 cm and a height of 7 cm. The density of the glass is 2.4 grams per cubic centimeter.

Determine and state, to the *nearest gram*, the mass of the pyramid.

$D = \frac{m}{V}$



$V = \frac{1}{3}Bh$

$V = \frac{1}{3}(32.49)(7)$

$V = \frac{1}{3}(227.43)$

$V = 75.81 cm^3$

$D = \frac{m}{V}$

$\frac{181.944}{1} = \frac{x}{75.81}$

$75.81 \times 2.4 = 181.944$

$x = 13793.175$

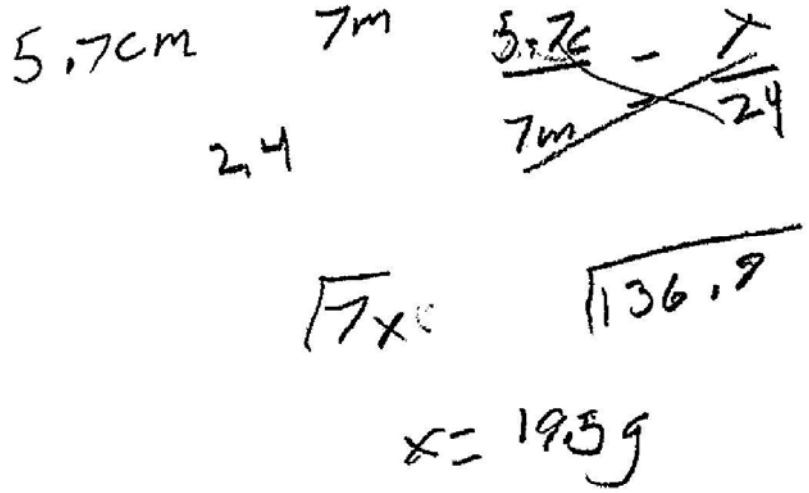
$m = 13,793 g$

Score 1: The student correctly determined the volume of the pyramid.

Question 31

31 A pyramid with a square base is made of solid glass. The pyramid has a base with a side length of 5.7 cm and a height of 7 cm. The density of the glass is 2.4 grams per cubic centimeter.

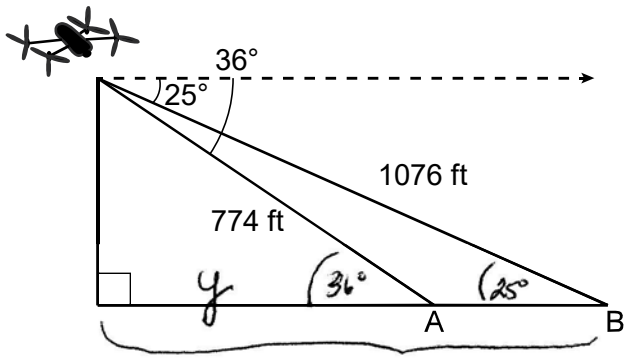
Determine and state, to the *nearest gram*, the mass of the pyramid.



Score 0: The student did not show enough correct relevant course-level work to receive any credit.

Question 32

32 A drone is used to measure the size of a brush fire on the ground. Segment AB represents the width of the fire, as shown below. The drone calculates the distance to point B to be 1076 feet at an angle of depression of 25°. At the same point, the drone calculates the distance to point A to be 774 feet at an angle of depression of 36°.



Determine and state the width of the fire, $\overline{AB}$, to the *nearest foot*.

$\cos 25 = \frac{x}{1076}$ $\quad$ $\cos 36 = \frac{y}{774}$

$x = 1076(\cos 25)$ $\quad$ $y = 774(\cos 36)$

$x = 975.1871\ldots$ $\quad$ $y = 626.1791\ldots$

$AB = x - y$

349.0

349

Score 4: The student gave a complete and correct response.

Question 32

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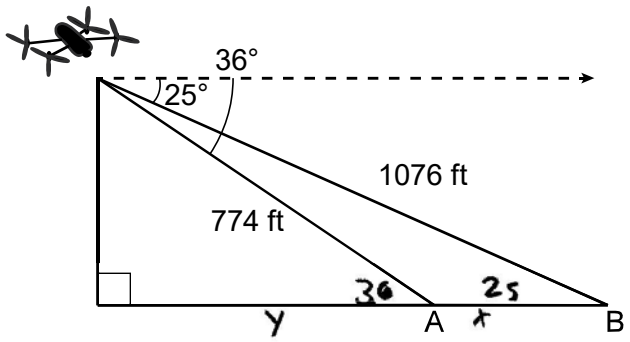

Determine and state the width of the fire, $\overline{AB}$, to the *nearest foot*.

$\cos 36 = \frac{y}{774}$

$y = \cos 36(774)$

$y = 626.179$

$\cos 25 = \frac{x + 626.176}{1076}$

$x + 626.176 = \cos 25(1076)$

$x + 626.176 = 975.187189$

$x = 349$

Score 4: The student gave a complete and correct response.

Question 32

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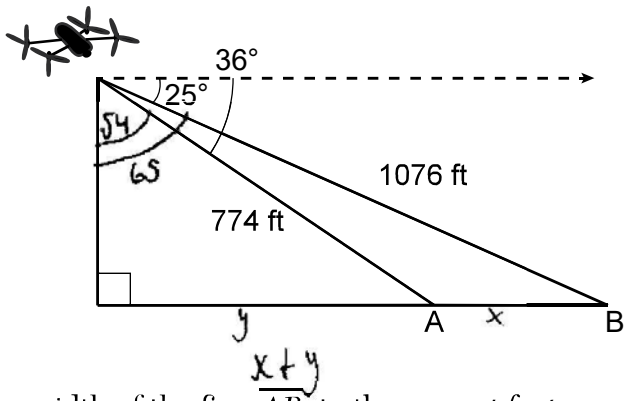


Determine and state the width of the fire, $\overline{AB}$, to the *nearest foot*.

$\frac{\sin 54}{1} = \frac{y}{774}$

$636.1791... = y$

$\frac{\sin 65}{1} = \frac{x+y}{1076}$

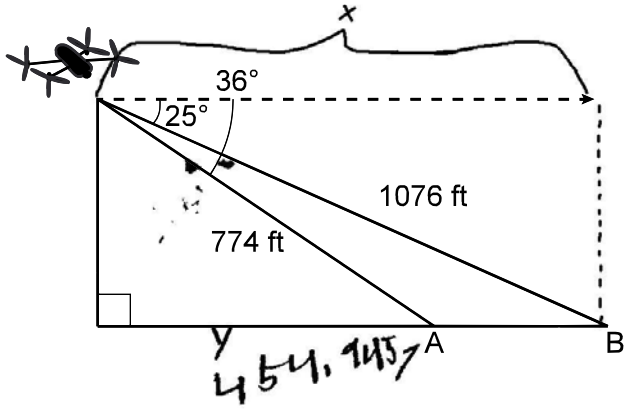
$975.1871... = x+y$

$975.1871...$
$- 636.1791...$
349 ft

Score 4: The student gave a complete and correct response.

Question 32

32 A drone is used to measure the size of a brush fire on the ground. Segment AB represents the width of the fire, as shown below. The drone calculates the distance to point B to be 1076 feet at an angle of depression of 25°. At the same point, the drone calculates the distance to point A to be 774 feet at an angle of depression of 36°.



$\sin 65 = \frac{x}{1076}$

$x = 975.1871$

$\therefore 454.9457$

Determine and state the width of the fire, $\overline{AB}$, to the *nearest foot*.

$\cos 54 = \frac{y}{774}$

$y = 454.9457$

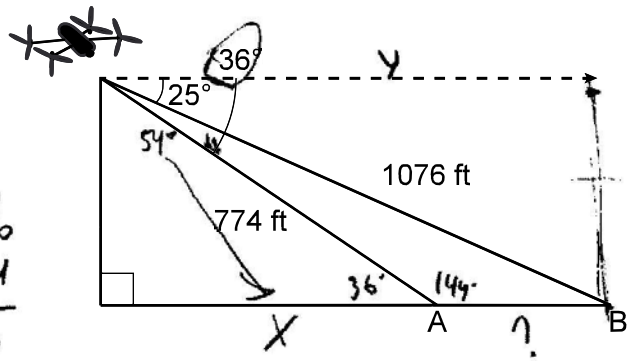
520.2414

$AB = 520$ ft

Score 3: The student used an incorrect trigonometric equation to determine the horizontal length to A, but found an appropriate answer.

Question 32

32 A drone is used to measure the size of a brush fire on the ground. Segment AB represents the width of the fire, as shown below. The drone calculates the distance to point B to be 1076 feet at an angle of depression of 25°. At the same point, the drone calculates the distance to point A to be 774 feet at an angle of depression of 36°.



Determine and state the width of the fire, $\overline{AB}$, to the *nearest foot*.

$\sin(54°) = \frac{x}{774}$

$0.81 = \frac{x}{774}$

$x = 626.94$

$975.19 - 626.94 = 348.25$

$\cos(25) = \frac{y}{1076}$

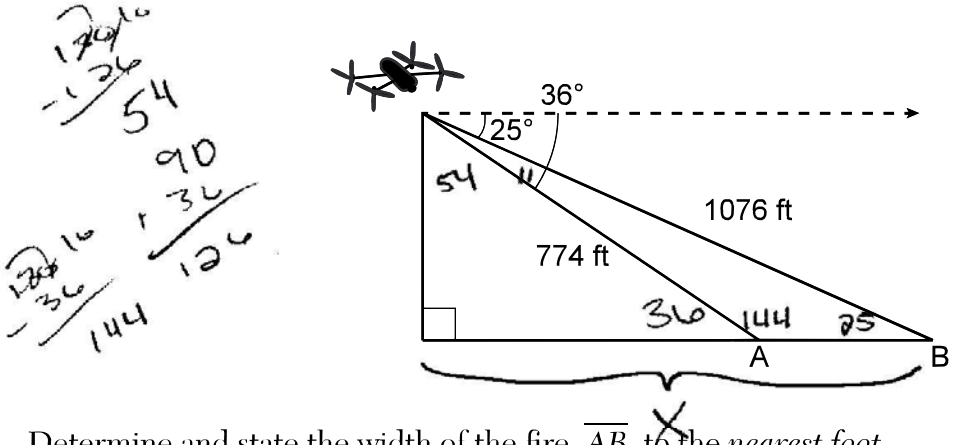
$y = 975.19$

$AB = 348$

Score 3: The student made a rounding error in determining the sin 54°.

Question 32

32 A drone is used to measure the size of a brush fire on the ground. Segment AB represents the width of the fire, as shown below. The drone calculates the distance to point B to be 1076 feet at an angle of depression of 25°. At the same point, the drone calculates the distance to point A to be 774 feet at an angle of depression of 36°.



Determine and state the width of the fire, $\overline{AB}$, to the *nearest foot*.

$\frac{\cos(25)}{1} = \frac{X}{1076}$

$\cos(25)(1076) = X$

975 ft

Score 2: The student correctly determined the horizontal distance to B.

Question 32

32 A drone is used to measure the size of a brush fire on the ground. Segment AB represents the width of the fire, as shown below. The drone calculates the distance to point B to be 1076 feet at an angle of depression of 25°. At the same point, the drone calculates the distance to point A to be 774 feet at an angle of depression of 36°.

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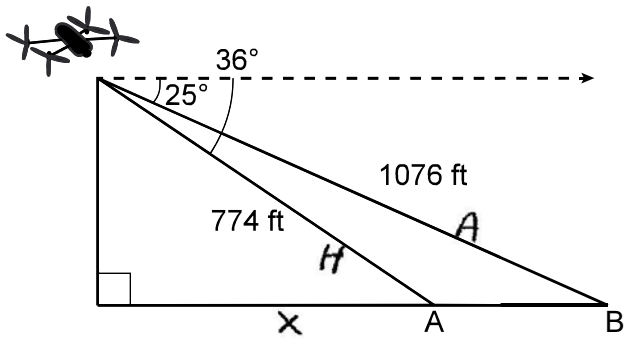


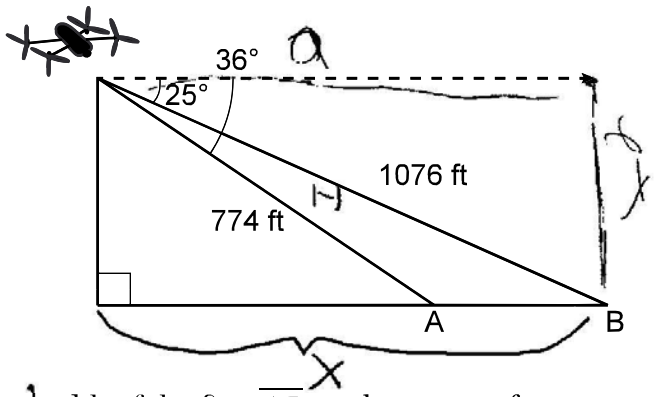
Determine and state the width of the fire, $\overline{AB}$, to the *nearest foot*.

$x = \cos(36) \cdot 774 = 626$ ft

Score 2: The student correctly determined the horizontal distance to A.

Question 32

32 A drone is used to measure the size of a brush fire on the ground. Segment AB represents the width of the fire, as shown below. The drone calculates the distance to point B to be 1076 feet at an angle of depression of 25°. At the same point, the drone calculates the distance to point A to be 774 feet at an angle of depression of 36°.



Determine and state the width of the fire, $\overline{AB}$, to the *nearest foot*.

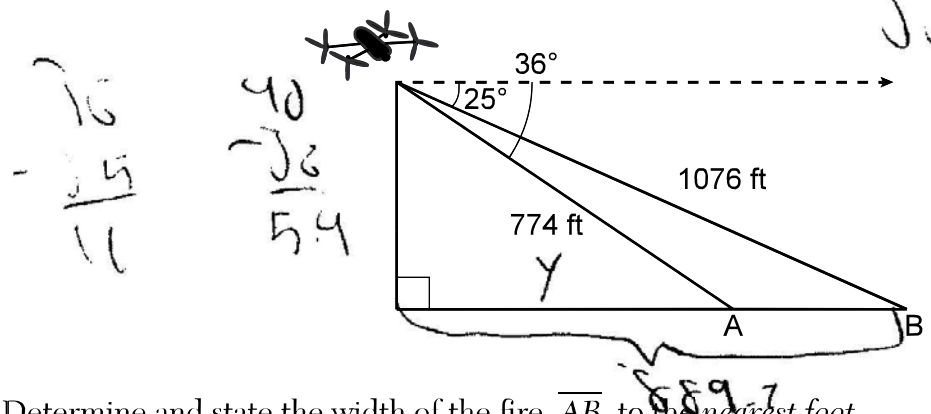
$\cos(25) = \frac{x}{1076}$

$x = 975.187$

Score 2: The student correctly determined the horizontal distance to B.

Question 32

32 A drone is used to measure the size of a brush fire on the ground. Segment AB represents the width of the fire, as shown below. The drone calculates the distance to point B to be 1076 feet at an angle of depression of 25°. At the same point, the drone calculates the distance to point A to be 774 feet at an angle of depression of 36°.



Determine and state the width of the fire, $\overline{AB}$, to the *nearest foot*.

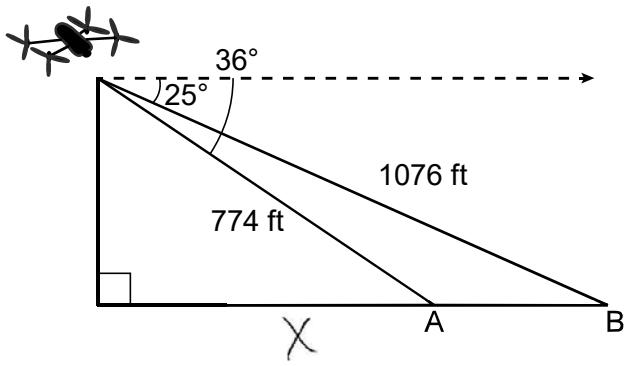
$\sin(54) = \frac{Y}{774}$

$Y = 774 \sin(54)$.

Score 1: The student wrote one correct relevant trigonometric equation.

Question 32

32 A drone is used to measure the size of a brush fire on the ground. Segment AB represents the width of the fire, as shown below. The drone calculates the distance to point B to be 1076 feet at an angle of depression of 25°. At the same point, the drone calculates the distance to point A to be 774 feet at an angle of depression of 36°.



Determine and state the width of the fire, $\overline{AB}$, to the *nearest foot*.

$\cos 90 \frac{x}{1076}$

$x =$

Score 0: The student did not show enough course-level work to receive any credit.

Question 32

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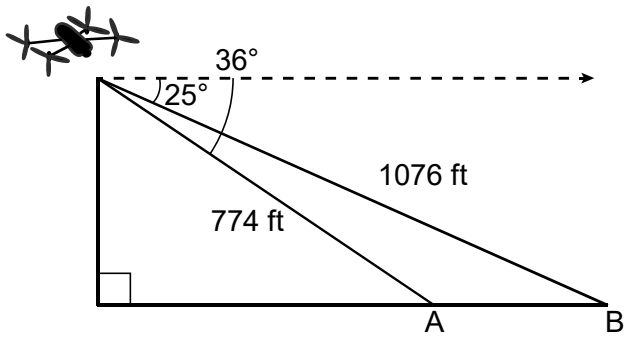


Determine and state the width of the fire, $\overline{AB}$, to the *nearest foot*.

$1076^2 - 774^2 = \overline{AB}^2$

$\sqrt{558700} = \overline{AB}^2$

$\overline{AB} = 747$ ft

Score 0: The student did not show enough course-level work to receive any credit.

Question 33

33 Quadrilateral $ABCD$ has vertices with coordinates $A(-3,6)$, $B(6,3)$, $C(6,-2)$, and $D(-6,2)$.

Joe defines an isosceles trapezoid as a trapezoid with congruent diagonals. Use Joe's definition to prove $ABCD$ is an isosceles trapezoid.

[The use of the set of axes below is optional.]

$m_{\overline{AB}} = \frac{3-6}{6-(-3)} = \frac{-3}{9} = -\frac{1}{3}$

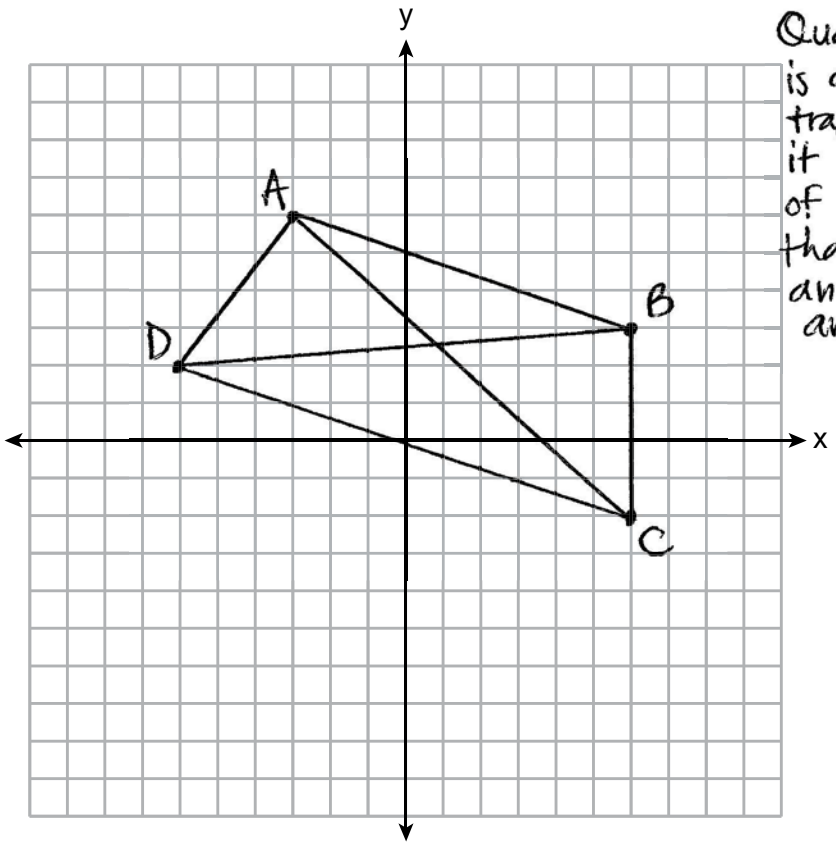
$m_{\overline{CD}} = \frac{2-(-2)}{-6-6} = \frac{4}{-12} = -\frac{1}{3}$

$m_{\overline{AB}} = m_{\overline{CD}} \rightarrow \overline{AB} \parallel \overline{CD}$

$AC = \sqrt{(6-(-3))^2+(-2-6)^2} = \sqrt{81+64} = \sqrt{145}$

$BD = \sqrt{(-6-6)^2+(2-3)^2} = \sqrt{144+1} = \sqrt{145}$

$\rightarrow AC = BD \rightarrow \overline{AC} \cong \overline{BD}$



Quadrilateral ABCD is an isosceles trapezoid because it has one pair of opposite sides that are parallel and its diagonals are congruent.

Score 4: The student gave a complete and correct response.

Question 33

33 Quadrilateral $ABCD$ has vertices with coordinates $A(-3,6)$, $B(6,3)$, $C(6,-2)$, and $D(-6,2)$.

Joe defines an isosceles trapezoid as a trapezoid with congruent diagonals. Use Joe's definition to prove $ABCD$ is an isosceles trapezoid.

[The use of the set of axes below is optional.]

$m = \frac{\Delta y}{\Delta x}$

$m\overline{AB} = -\frac{3}{9} = -\frac{1}{3}$

$m\overline{CD} = -\frac{4}{12} = -\frac{1}{3}$

Same slope $\overline{AB} \parallel \overline{CD}$

One pair of opp. sides are ||.

∴ ABCD is a trapezoid

$a^2 + b^2 = c^2$

$8^2 + 9^2 = c^2$ $\quad 1^2 + 12^2 = c^2$

$145 = c^2$ $\quad 145 = c^2$

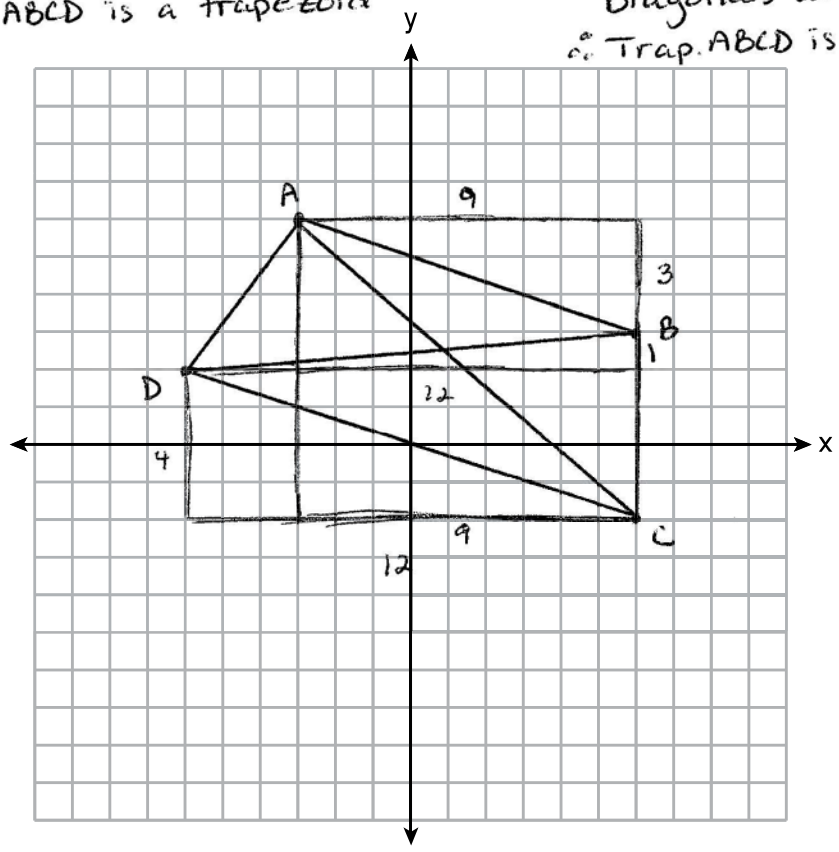
$c = \sqrt{145}$ $\quad c = \sqrt{145}$

$AC = \sqrt{145}$ $\quad BD = \sqrt{145}$

$\overline{AC} \cong \overline{BD}$

Diagonals are ≅

∴ Trap. ABCD is an isosceles trapezoid



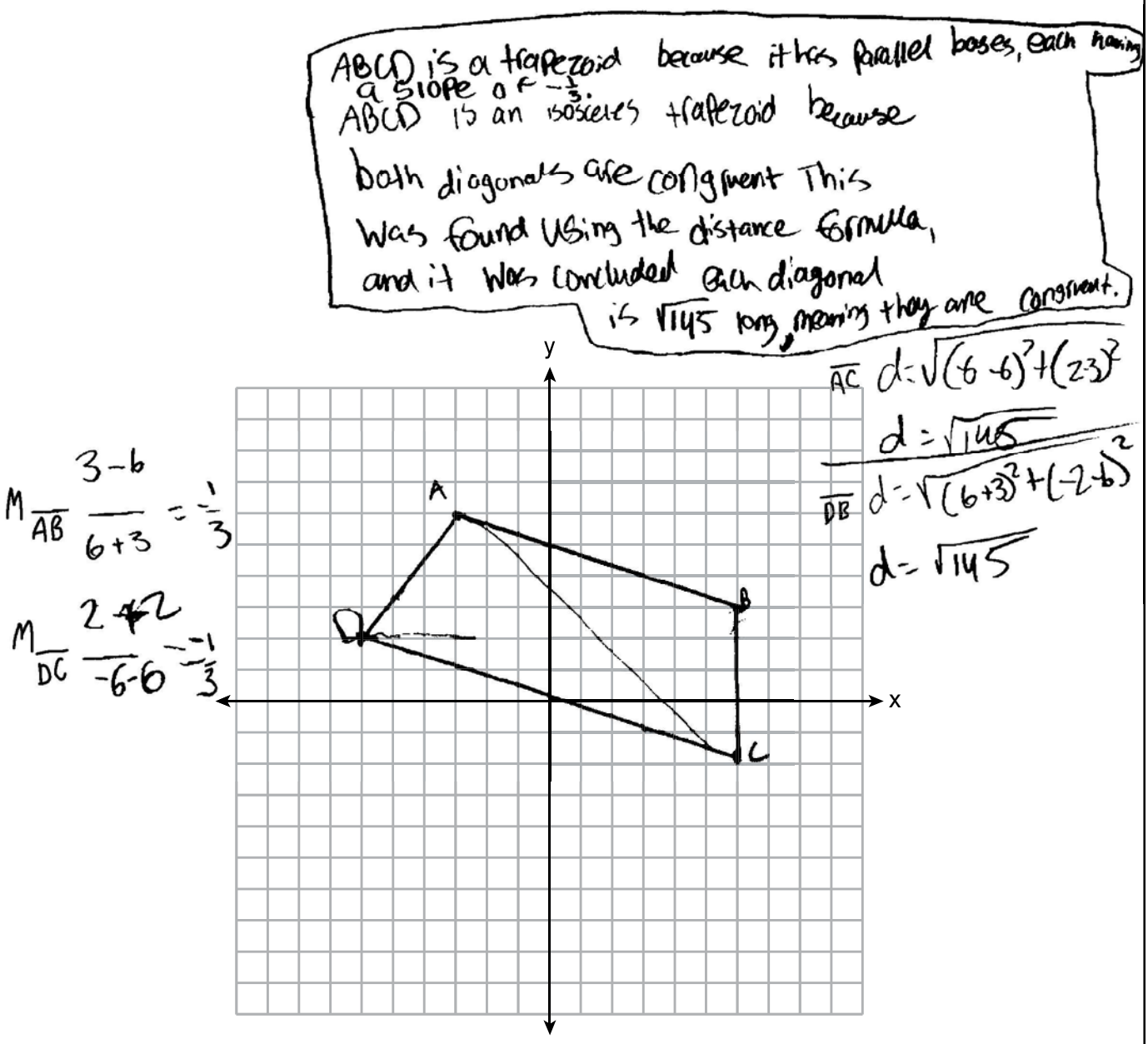
Score 4: The student gave a complete and correct response.

Question 33

33 Quadrilateral *ABCD* has vertices with coordinates $A(-3,6)$, $B(6,3)$, $C(6,-2)$, and $D(-6,2)$.

Joe defines an isosceles trapezoid as a trapezoid with congruent diagonals. Use Joe's definition to prove *ABCD* is an isosceles trapezoid.

[The use of the set of axes below is optional.]



Score 4: The student gave a complete and correct response.

Question 33

33 Quadrilateral $ABCD$ has vertices with coordinates $A(-3,6)$, $B(6,3)$, $C(6,-2)$, and $D(-6,2)$.

Joe defines an isosceles trapezoid as a trapezoid with congruent diagonals. Use Joe's definition to prove $ABCD$ is an isosceles trapezoid.

[The use of the set of axes below is optional.]

$D_1 = \sqrt{(6-(-3))^2 + (-3-6)^2}$

$D_1 = \sqrt{(8)^2 + (-9)^2}$

$D_1 = \sqrt{64+81}$

$D_1 = \sqrt{145}$

$D_2 = \sqrt{(3-(2))^2 + (6-(-6))^2}$

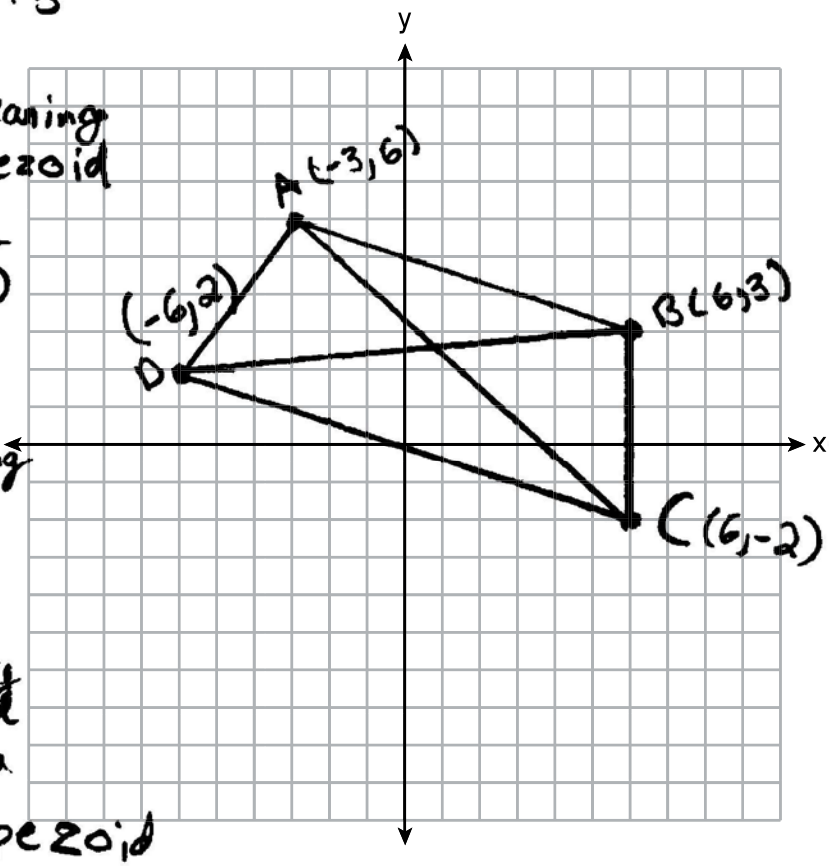
$D_2 = \sqrt{(1)^2 + (12)^2}$

$D_2 = \sqrt{1+144}$

$D_2 = \sqrt{145}$

$\overline{AB}$ and $\overline{CD}$ are parallel meaning ABCD is a trapezoid

Diagonals $\overline{AC}$ and $\overline{BD}$ both equal $\sqrt{145}$ meaning they are Congruent and meaning Quadrelateral ABCD is a isosceles trapezoid



$\frac{6-3}{-3-6} = \frac{3}{-9} = -\frac{1}{3}$

$\overline{AB}$

$y = -\frac{1}{3}x + b$

$\overline{CD}$

$\frac{2-(-2)}{-6-6} = \frac{4}{-12} = -\frac{1}{3}$

$y = -\frac{1}{3}x + b$

Score 3: The student did not write a concluding statement when proving $\overline{AB} \parallel \overline{DC}$.

Question 33

33 Quadrilateral $ABCD$ has vertices with coordinates $A(-3,6)$, $B(6,3)$, $C(6,-2)$, and $D(-6,2)$.

Joe defines an isosceles trapezoid as a trapezoid with congruent diagonals. Use Joe's definition to prove $ABCD$ is an isosceles trapezoid.

[The use of the set of axes below is optional.]

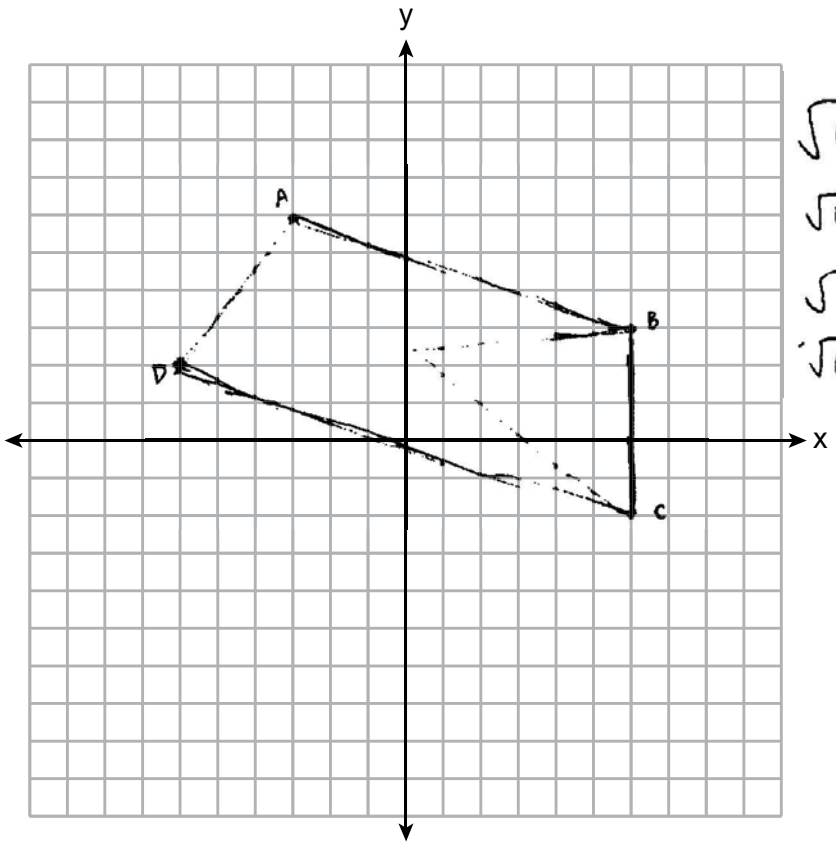
A trapezoid has 1 pair of || sides.

The slope of $\overline{AB}$ + $\overline{DC}$ are the same, and thus they're parallel.

Both diagonals have a length of $\sqrt{145}$. This matches Joe's definition of an isosceles trapezoid

$\frac{2-2}{-6-6} = \frac{2+2}{-12} = \frac{4}{-12} = -3$ m $\overline{DC}$

$\frac{6-3}{-3-6} = \frac{3}{-9} = -3$ m $\overline{AB}$



$\sqrt{(6+6)^2 + (3-2)^2}$

$\sqrt{145}$ = DB

$\sqrt{(-3-6)^2 + (6+2)^2}$

$\sqrt{145}$ = AC

Score 3: The student made a computational error when determining the slopes of $\overline{AB}$ and $\overline{DC}$.

Question 33

33 Quadrilateral *ABCD* has vertices with coordinates $A(-3,6)$, $B(6,3)$, $C(6,-2)$, and $D(-6,2)$.

Joe defines an isosceles trapezoid as a trapezoid with congruent diagonals. Use Joe's definition to prove *ABCD* is an isosceles trapezoid.

[The use of the set of axes below is optional.]

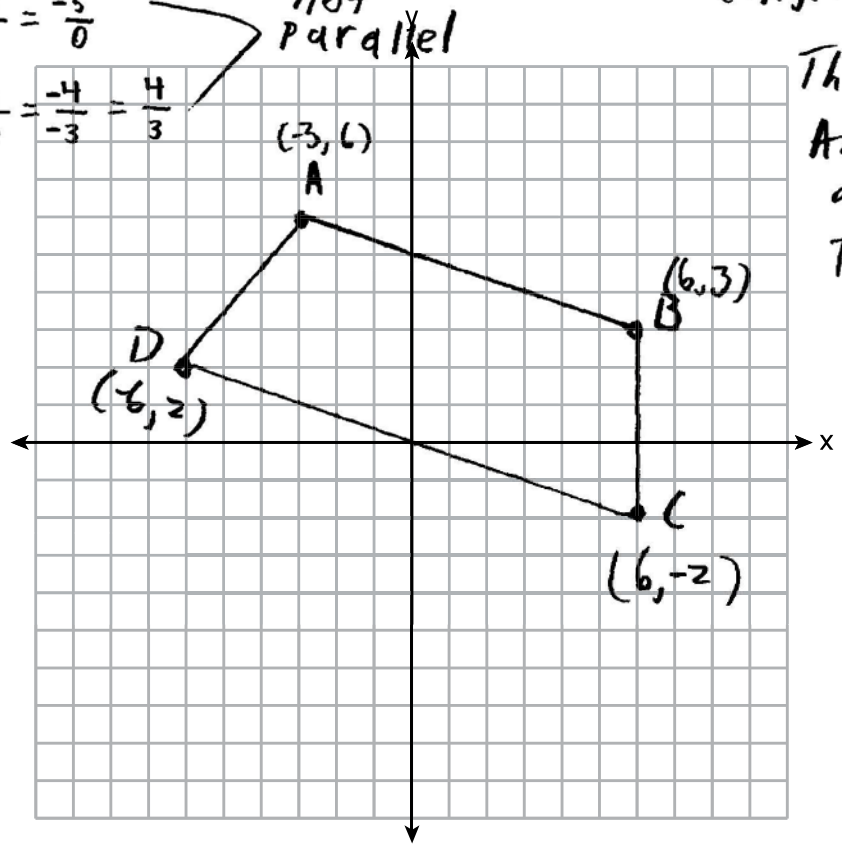
Slope:
$\overline{AB}$: $\frac{3-6}{6+3} = \frac{-3}{9} = -\frac{1}{3}$ > Parallel
$\overline{DC}$: $\frac{-2-2}{6+6} = \frac{-4}{12} = -\frac{1}{3}$

Distance:
$BC: \sqrt{(6-6)^2 + (-2-3)^2} = \sqrt{0+25} = 5$
$DA: \sqrt{(-3+6)^2 + (6-2)^2} = \sqrt{9+16} = 5$

$\overline{BC}$ $\frac{-2-3}{6-6} = \frac{-5}{0}$
$\overline{AD}$ $\frac{2-6}{-6-3} = \frac{-4}{-3} = \frac{4}{3}$
> not Parallel

ABCD has at least one pair of parallel sides, $\overline{AB}$ and $\overline{DC}$, thus it is a trapezoid. ABCD also has only one pair of not parallel congruent sides.

Thus, all in all, ABCD is an isosceles Trapezoid



Score 3: The student proved trapezoid *ABCD* was isosceles using a method other than congruent diagonals.

Question 33

33 Quadrilateral $ABCD$ has vertices with coordinates $A(-3,6)$, $B(6,3)$, $C(6,-2)$, and $D(-6,2)$.

Joe defines an isosceles trapezoid as a trapezoid with congruent diagonals. Use Joe's definition to prove $ABCD$ is an isosceles trapezoid.

[The use of the set of axes below is optional.]

Top and bottom //

Slope $= \frac{y_2 - y_1}{x_2 - x_1}$

$\overline{AB} = \frac{3-6}{6+3}$

$\overline{AB} = \frac{-1}{3}$

$\overline{AB} \parallel \overline{CD}$ $\overline{CD} = \frac{2--2}{-6-6}$

$\overline{CD} = \frac{+1}{3}$

congruent sides

$\overline{AD} = \sqrt{(-3+6)^2 + (6-2)^2}$

$\overline{AD} = \sqrt{(3)^2 + (4)^2}$

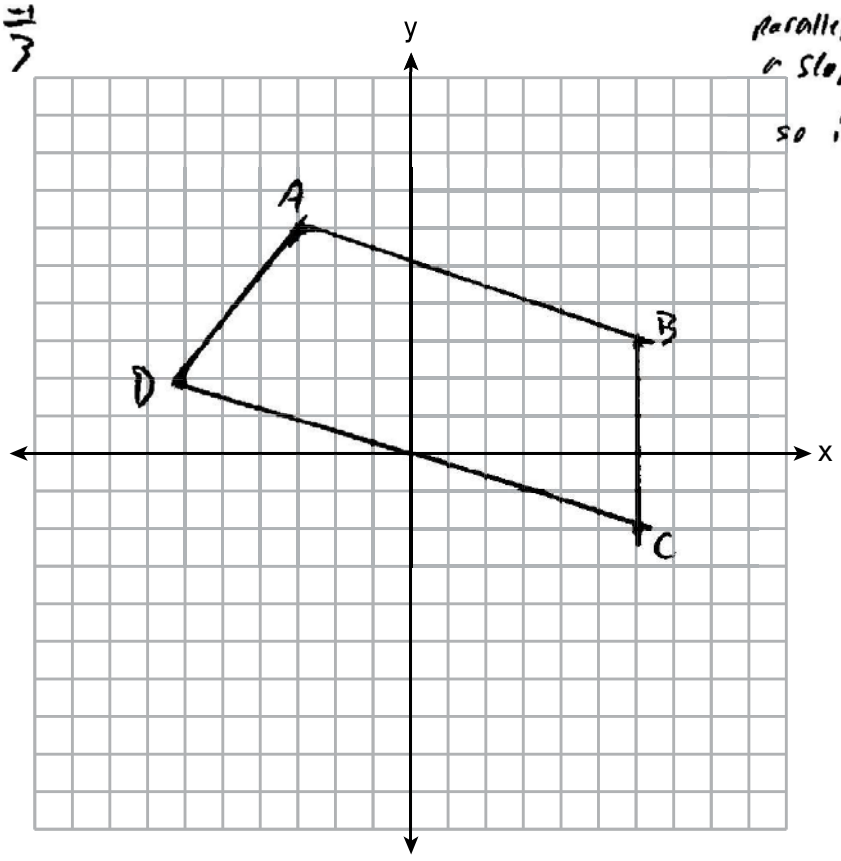
$\overline{AD} = 5$

$\overline{BC} = \sqrt{(6-6)^2 + (3+2)^2}$

$\overline{BC} = \sqrt{(0)^2 + (5)^2}$

$\overline{BC} = 5$

Using the slope formula, I found that quadrilateral ABCD has 1 pair of parallel sides with a slope of $\frac{-1}{3}$ so its a trapezoid



Score 2: The student proved $ABCD$ was a trapezoid. The student used a method other than congruent diagonals to prove $ABCD$ was isosceles, but the student did not prove $\overline{AD}$ is not parallel to $\overline{BC}$ and is missing a concluding statement.

Question 33

33 Quadrilateral $ABCD$ has vertices with coordinates $A(-3,6)$, $B(6,3)$, $C(6,-2)$, and $D(-6,2)$.

Joe defines an isosceles trapezoid as a trapezoid with congruent diagonals. Use Joe's definition to prove $ABCD$ is an isosceles trapezoid.

[The use of the set of axes below is optional.]

AC:

$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

$d = \sqrt{(6 - -3)^2 + (-2 - 6)^2}$

$d = \sqrt{(9)^2 + (-8)^2}$

$d = \sqrt{81 + 64}$

$d = \sqrt{145}$

BD:

$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

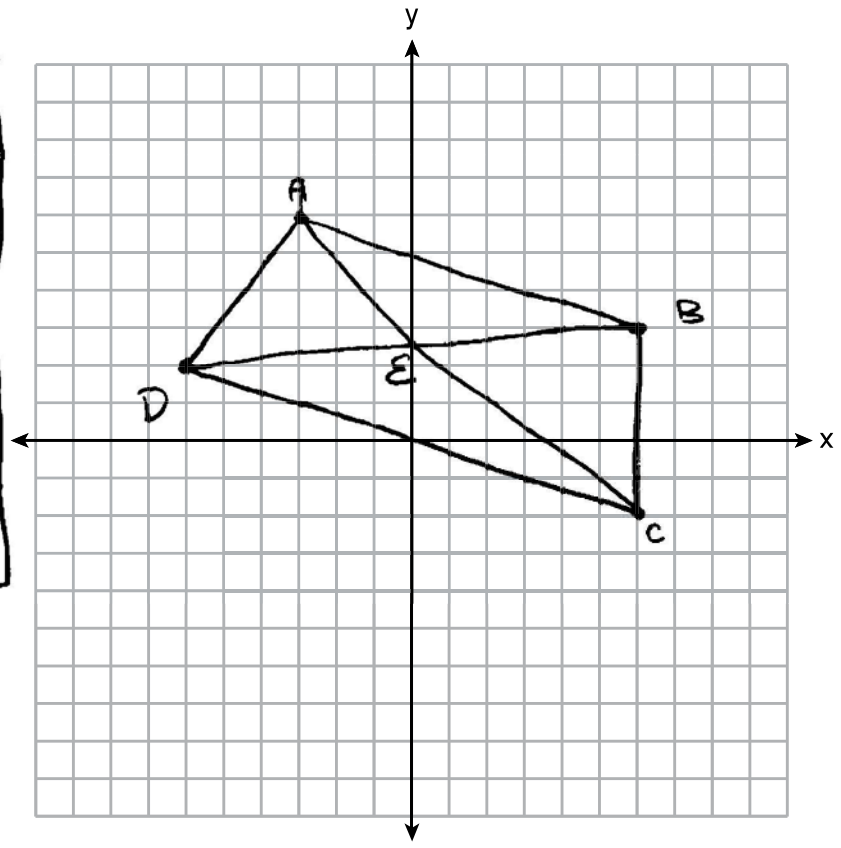
$d = \sqrt{(-6 - 6)^2 + (2 - 3)^2}$

$d = \sqrt{(-12)^2 + (-1)^2}$

$d = \sqrt{144 + 1}$

$d = \sqrt{145}$

Using Joe's definition, then ABCD is an isosceles trapezoid because of congruent diagnols



Score 2: The student proved $\overline{AC} \cong \overline{BD}$, but did not prove $ABCD$ was a trapezoid.

Question 33

33 Quadrilateral $ABCD$ has vertices with coordinates $A(-3,6)$, $B(6,3)$, $C(6,-2)$, and $D(-6,2)$.

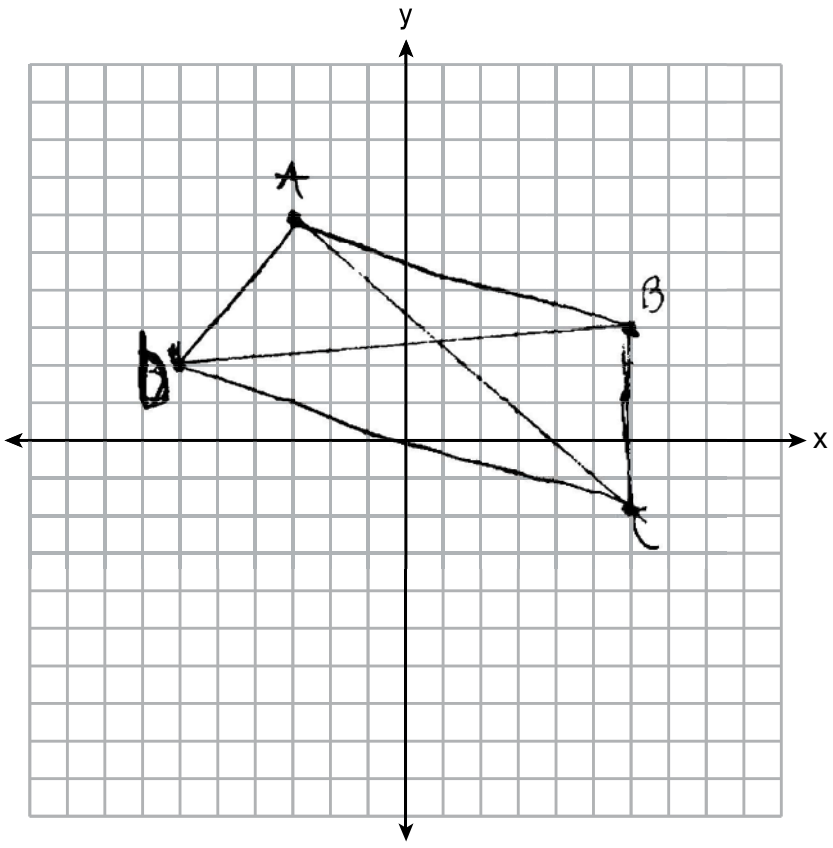
Joe defines an isosceles trapezoid as a trapezoid with congruent diagonals. Use Joe's definition to prove $ABCD$ is an isosceles trapezoid.

[The use of the set of axes below is optional.]

$AC\sqrt{(6--3)^2+(-2-6)^2} = \sqrt{145}$

$BD\sqrt{(-6-6)^2+(2-3)^2} = \sqrt{145}$

Diagonals are congruent



Score 1: The student correctly determined the length of the diagonals.

Question 33

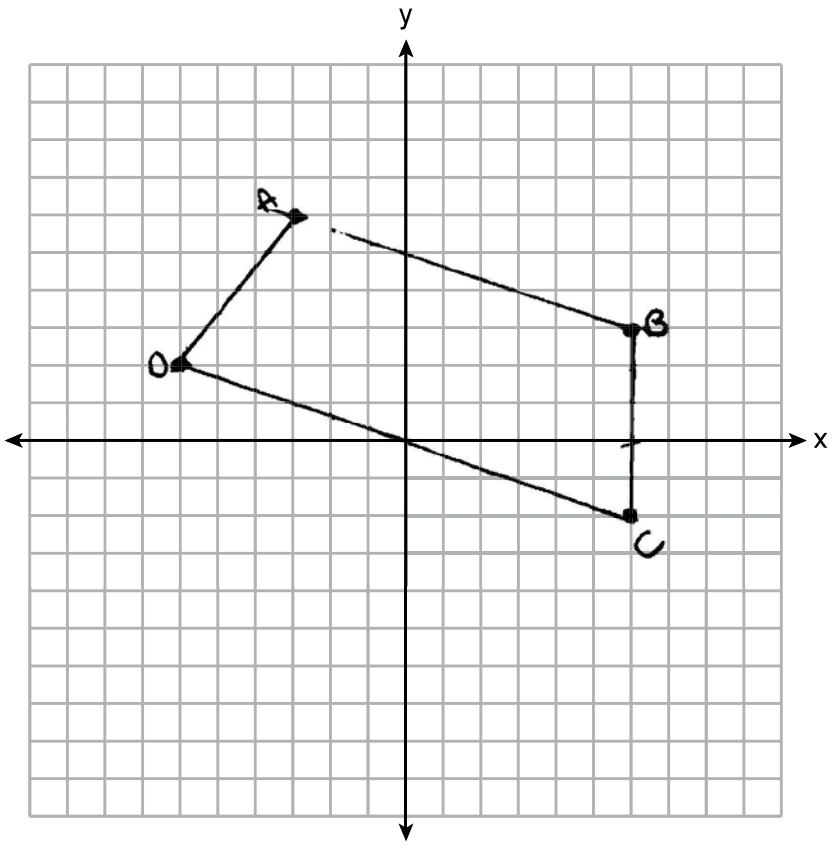
33 Quadrilateral $ABCD$ has vertices with coordinates $A(-3,6)$, $B(6,3)$, $C(6,-2)$, and $D(-6,2)$.

Joe defines an isosceles trapezoid as a trapezoid with congruent diagonals. Use Joe's definition to prove $ABCD$ is an isosceles trapezoid.

[The use of the set of axes below is optional.]

$AC = d = \sqrt{(-3-6)^2+(6+2)^2} = \sqrt{(-9)^2+(8)^2} = \sqrt{81+72} = \sqrt{153}$

$BD = d = \sqrt{(6+6)^2+(3-2)^2} = \sqrt{(12)^2+(1)^2} = \sqrt{144+1} = \sqrt{145}$



Score 0: The student did not show enough correct relevant course-level work to receive any credit.

Question 33

33 Quadrilateral $ABCD$ has vertices with coordinates $A(-3,6)$, $B(6,3)$, $C(6,-2)$, and $D(-6,2)$.

Joe defines an isosceles trapezoid as a trapezoid with congruent diagonals. Use Joe's definition to prove $ABCD$ is an isosceles trapezoid.

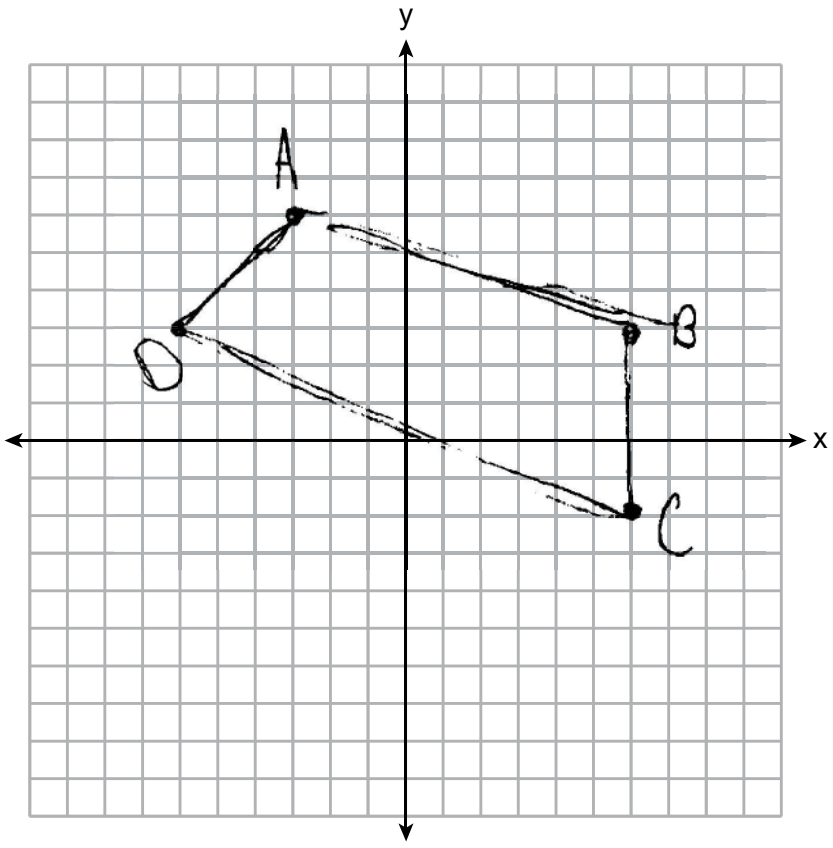
[The use of the set of axes below is optional.]

$AB \ \frac{3-3}{6-6} = \frac{6}{0} = 6$

$DA = \frac{2-6}{-6--3} = \frac{-4}{-3} = \frac{4}{3}$

$BC = \frac{-2-3}{6-6} = \frac{-5}{0} = -5$

$CD = \frac{2--2}{-6-6} = \frac{4}{-12} = \frac{4}{12} = \frac{2}{6} = \frac{1}{3}$



Score 0: The student did not show enough correct relevant course-level work to receive any credit.

Question 34

34 Ali made six solid spherical decorations out of modeling clay. Each decoration has a radius of 2.5 inches. The weight of clay is 68 pounds per cubic foot.

Determine and state, to the *nearest pound*, the total weight of the six decorations.

$V_{sphere} = \frac{4}{3}\pi(2.5)^3$

$V_{sphere} = 65.4498\,in^3$

$65.4498\,in^3 \cdot 6 = 392.6990\,in^3$

$\frac{392.6990\,in^3}{1} \cdot \frac{1ft}{12in} \cdot \frac{1ft}{12in} \cdot \frac{1ft}{12in} \cdot \frac{68\,lbs}{1ft^3} =$

$\frac{26703.532}{1728} = 15.4534 \approx 15\,lbs$

Score 4: The student gave a complete and correct response.

Question 34

34 Ali made six solid spherical decorations out of modeling clay. Each decoration has a radius of 2.5 inches. The weight of clay is 68 pounds per cubic foot.

Determine and state, to the *nearest pound*, the total weight of the six decorations.

(2.5) $V = \frac{4}{3}\pi r^3$

$\frac{2.5}{12} = .208\overline{3}$

$V = \frac{4}{3}\pi .208\overline{3}^3$

$V = 0.037876068\overline{8}$

$V \cdot 68 = 2.575572678$

$2.575572678 \cdot 6$

15.45343609

≈ 15

To the nearest pound, the total weight of six decorations is 15 pounds.

Score 4: The student gave a complete and correct response.

Question 34

34 Ali made six solid spherical decorations out of modeling clay. Each decoration has a radius of 2.5 inches. The weight of clay is 68 pounds per cubic foot.

Determine and state, to the *nearest pound*, the total weight of the six decorations.

$V = \frac{4}{3}\pi r^3$

$V = \frac{4}{3}\pi (2.5)^3$

$V = \frac{4}{3}\pi (15.625)$

$V = 20\frac{5}{8}\pi$

$V = 65.44984694...$

$65.44984694... \cdot 6 = 392.6990816$

$\frac{392.6990816}{12} = 32.72492347$

$32.72492347 \cdot 68 = 2225.294796 \approx$ 2225 lbs

Score 3: The student made an error converting cubic inches to cubic feet.

Question 34

34 Ali made six solid spherical decorations out of modeling clay. Each decoration has a radius of 2.5 inches. The weight of clay is 68 pounds per cubic foot.

Determine and state, to the *nearest pound*, the total weight of the six decorations.

The formula to find the volume of a sphere is $V=\frac{4}{3}\pi r^3$. The radius is 2.5 inches.

$V=\frac{4}{3}\pi(2.5)^3$

$V=\frac{4}{3}\pi(39.0625)$

$V=52.0833\pi$

$V=163.625$

The volume is 163.625 cubic inches. Since there are 1728 cubic inches in a cubic foot, and $\frac{163.625}{1728}$ is 0.0947, a decoration is 0.0947 cubic feet, and $0.0947*6=0.5682$, thus making 6 decorations 0.5682 cubic feet. Since every cubic foot is 68 pounds, and $0.5682\times68=38.63$, which rounds to 39, the weight of 6 decorations is **39 pounds**

Score 3: The student made a computational error when determining the volume of one sphere.

Question 34

34 Ali made six solid spherical decorations out of modeling clay. Each decoration has a radius of 2.5 inches. The weight of clay is 68 pounds per cubic foot.

Determine and state, to the *nearest pound*, the total weight of the six decorations.

$\frac{4}{3}\pi 2.5^3 = 65.449$

$\times 6$

392.699

$\times 68$

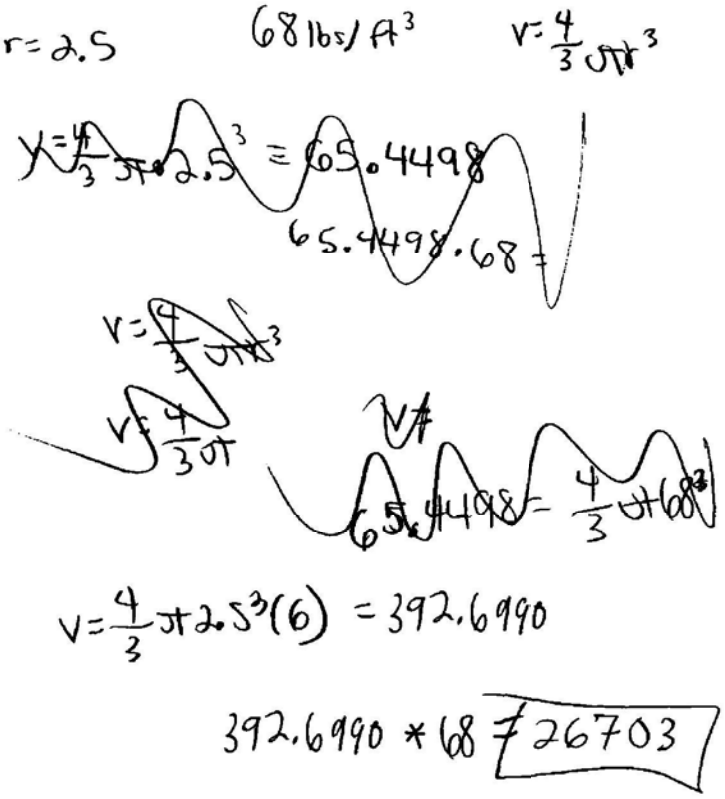
26704 LBS

Score 3: The student made an error by not converting to cubic feet.

Question 34

34 Ali made six solid spherical decorations out of modeling clay. Each decoration has a radius of 2.5 inches. The weight of clay is 68 pounds per cubic foot.

Determine and state, to the *nearest pound*, the total weight of the six decorations.



Score 2: The student did not convert to cubic feet and made a rounding error when determining the weight.

Question 34

34 Ali made six solid spherical decorations out of modeling clay. Each decoration has a radius of 2.5 inches. The weight of clay is 68 pounds per cubic foot.

Determine and state, to the *nearest pound*, the total weight of the six decorations.

$V = \frac{4}{3}\pi(2.5)^2$

$V = 26.179938\,78\ in^3 \cdot \frac{1\ ft}{12\ in} \cdot$

$V = 2.181661565\ ft^3$

$\times\ 6$

$13.0899\ 939\ ft^3 \cdot \frac{68\ lb}{ft^3}$

890.1179185

890 Lbs

Score 2: The student made an error by squaring the radius and made an error converting cubic inches to cubic feet.

Question 34

34 Ali made six solid spherical decorations out of modeling clay. Each decoration has a radius of 2.5 inches. The weight of clay is 68 pounds per cubic foot.

Determine and state, to the *nearest pound*, the total weight of the six decorations.

$V = \frac{4}{3}\pi 2.5^3$

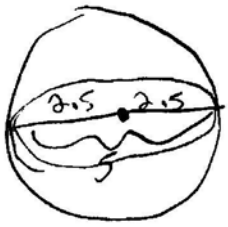
$V = 65.44$

Score 1: The student correctly determined the volume of one sphere in cubic inches.

Question 34

34 Ali made six solid spherical decorations out of modeling clay. Each decoration has a radius of 2.5 inches. The weight of clay is 68 pounds per cubic foot.

Determine and state, to the *nearest pound*, the total weight of the six decorations.



$V = \frac{4}{3}\pi r^3$

$V = \frac{4}{3}\pi(2.5)^3$

65.4498

65

Score 1: The student correctly determined the volume of one sphere in cubic inches.

Question 34

34 Ali made six solid spherical decorations out of modeling clay. Each decoration has a radius of 2.5 inches. The weight of clay is 68 pounds per cubic foot.

Determine and state, to the *nearest pound*, the total weight of the six decorations.

$2.5 \cdot 6 = 9$ $\frac{9}{12} = .75$

$68 \cdot .75 = 51$

$51 \cdot 6 = 306$

306 lbs

Score 0: The student did not show enough correct relevant work to receive any credit.

Question 34

34 Ali made six solid spherical decorations out of modeling clay. Each decoration has a radius of 2.5 inches. The weight of clay is 68 pounds per cubic foot.

Determine and state, to the *nearest pound*, the total weight of the six decorations.

$\frac{4}{3}\pi r^3$

$\frac{4}{3}\pi(2.5)^3$

$V = 5\text{ Ft}$

Score 0: The student did not show enough correct relevant work to receive any credit.

Question 34

34 Ali made six solid spherical decorations out of modeling clay. Each decoration has a radius of 2.5 inches. The weight of clay is 68 pounds per cubic foot.

Determine and state, to the *nearest pound*, the total weight of the six decorations.

$V = 4/3\pi r^2$

$V = 4/3\pi(2.5)^2$

$V = 4/3\pi(6.25)$

$V = 26.17993878$

26.17993878×8

209.4395102

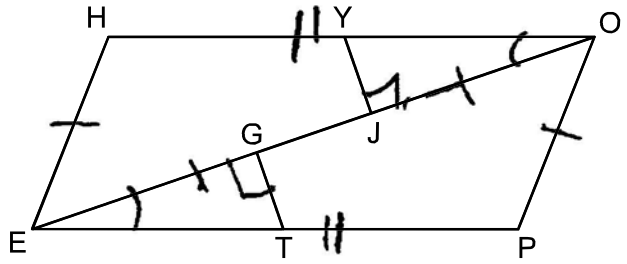
$68 \overline{)209.4395102}$

≈ 3 lbs

Score 0: The student did not show enough correct relevant work to receive any credit.

Question 35

35 In quadrilateral *HOPE* below, ~~$\overline{EH} \cong \overline{OP}$, $\overline{EP} \cong \overline{OH}$, $EJ \cong OG$~~, and $\overline{TG}$ and $\overline{YJ}$ are perpendicular to diagonal $\overline{EO}$ at points G and J, respectively.



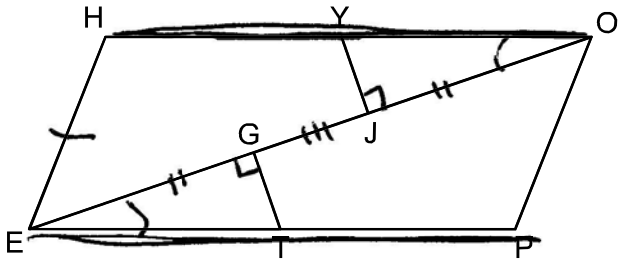
Prove that $\overline{TG} \cong \overline{YJ}$.

STATEMENT	REASON
QUAD HOPE	① GIVEN
① $\overline{EH} \cong \overline{OP}$, $\overline{EP} \cong \overline{OH}$	② IN A QUAD IF BOTH PAIRS OF OPPOSITE SIDES ARE CONGRUENT THEN ITS A PARALLOGRAM
② HOPE IS A PARALLELOGRAM	
③ $\overline{HO} \parallel \overline{PE}$	③ OPP. SIDES OF A PARALLELOGRAM ARE PARALLEL
④ ∠YOJ ≅ ∠GET	④ PARALLEL LINES CUT BY A TRANSVERSAL FORM CONGRUENT ALTERNATE INTERIOR ANGLES
⑤ $\overline{EJ} \cong \overline{OG}$	⑤ GIVEN
⑥ $\overline{GJ} \cong \overline{GJ}$	⑥ REFLEXIVE
⑦ $\overline{EG} \cong \overline{OJ}$	⑦ SUBTRACTION POSTULATE
⑧ $\overline{TG}$ & $\overline{YJ}$ ARE PERPENDICULAR TO $\overline{EO}$	⑧ GIVEN
⑨ ∠EGT & ∠YJO ARE RT ∠'S	⑨ PERPENDICULAR LINES FORM RIGHT ANGLES
⑩ ∠EGT ≅ ∠YJO	⑩ RIGHT ANGLES ARE CONGRUENT
⑪ △EGT ≅ △OJY	⑪ ASA
⑫ $\overline{TG} \cong \overline{YJ}$	⑫ CPCTC

Score 6: The student gave a complete and correct response.

Question 35

35 In quadrilateral *HOPE* below, $\overline{EH} \cong \overline{OP}$, $\overline{EP} \cong \overline{OH}$, $\overline{EJ} \cong \overline{OG}$, and $\overline{TG}$ and $\overline{YJ}$ are perpendicular to diagonal $\overline{EO}$ at points G and *J*, respectively.



Prove that $\overline{TG} \cong \overline{YJ}$.

$\overline{EH} \cong \overline{OP}$, $\overline{EP} \cong \overline{OH}$
Given

$\overline{EO} \cong \overline{OE}$
Reflexive

$\triangle EHO \cong \triangle OPE$
SSS $\cong$

$\angle HOE \cong \angle PEO$
CPCTC

$\overline{EJ} \cong \overline{OG}$
Given

$\overline{GJ} \cong \overline{JG}$
Reflexive

$\overline{EG} \cong \overline{OJ}$
Subtraction

$\triangle GET \cong \triangle JOY$
ASA $\cong$

$\overline{TG} \cong \overline{YJ}$
CPCTC

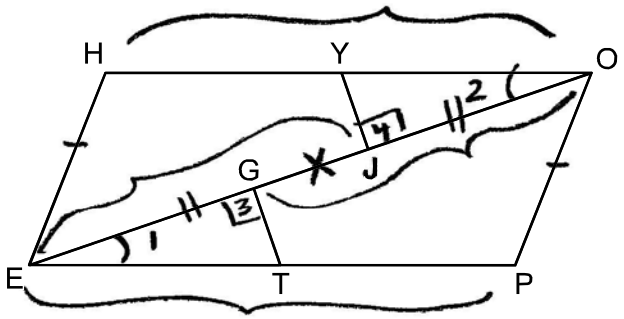
$\overline{TG}$ + $\overline{YJ}$ perpendicular to $\overline{EO}$ at G + J
Given

$\angle TGE \cong \angle YJO$
Perpendicular Segments form congruent right angles

Score 6: The student gave a complete and correct response.

Question 35

35 In quadrilateral *HOPE* below, $\overline{EH} \cong \overline{OP}$, $\overline{EP} \cong \overline{OH}$, $\overline{EJ} \cong \overline{OG}$, and $\overline{TG}$ and $\overline{YJ}$ are perpendicular to diagonal $\overline{EO}$ at points G and *J*, respectively.



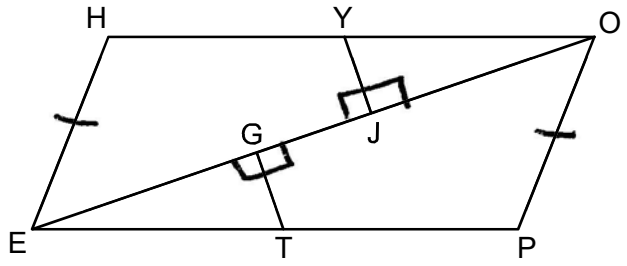
Prove that $\overline{TG} \cong \overline{YJ}$.

Statement	Reason
1. Quad Hope, $\overline{EH} \cong \overline{OP}$, $\overline{EP} \cong \overline{OH}$, $\overline{EJ} \cong \overline{OG}$, $\overline{TG}$ and $\overline{YJ}$ are $\perp$ to $\overline{EO}$ at G and J	1 GIVEN
2. Quad Hope is a parallelogram.	2 If both pairs of opp. sides of a quad are $\cong$, then it's a parallelogram.
3. $\angle 1 \cong \angle 2$	3 If 2 lines are cut by a transversal, the alt. int. $\angle$s are $\cong$
4. $\angle 3$ and $\angle 4$ are rt $\angle$s	4 $\perp$ lines form rt $\angle$s.
5. $\angle 3 \cong \angle 4$	5. rt $\angle$s are $\cong$.
6. $\overline{GJ} \cong \overline{GJ}$	6. Reflexive Postulate
7. $\overline{EG} \cong \overline{OJ}$	7. subtraction Postulate
8. $\triangle EGT \cong \triangle OJY$	8. ASA $\cong$ ASA
9. $\overline{TG} \cong \overline{YJ}$	9. CPCTC

Score 5: The student did not prove $\overline{HO} \parallel \overline{EP}$ to prove step 3.

Question 35

35 In quadrilateral *HOPE* below, $\overline{EH} \cong \overline{OP}$, $\overline{EP} \cong \overline{OH}$, $\overline{EJ} \cong \overline{OG}$, and $\overline{TG}$ and $\overline{YJ}$ are perpendicular to diagonal $\overline{EO}$ at points G and *J*, respectively.



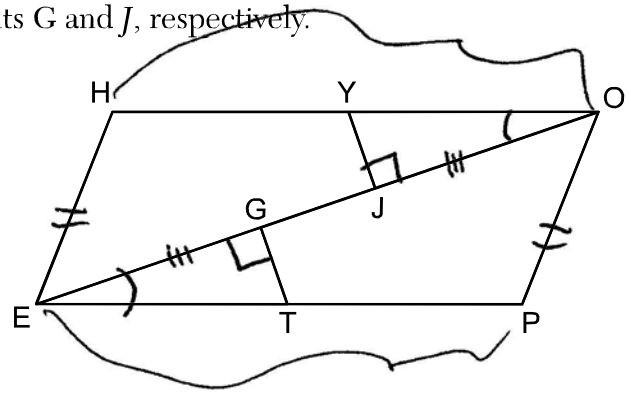
Prove that $\overline{TG} \cong \overline{YJ}$.

S	R
(1) Quad. HOPE with $\overline{EH} \cong \overline{OP}$, $\overline{EP} \cong \overline{OH}$, $\overline{EJ} \cong \overline{OG}$, $\overline{TG} \perp \overline{EO}$, and $\overline{YJ} \perp \overline{EO}$	(1) Given
(2) Quad. HOPE is a ▱	(2) A quad. with two pairs of opp sides $\cong$ is a ▱
(3) $\overline{OH} \parallel \overline{EP}$	(3) Opp. sides of a ▱ are $\parallel$.
(4) $\angle YOJ \cong \angle TEG$	(4) $\parallel$ lines $\rightarrow \cong$ alt. int. $\angle$s
(5) $\overline{EG} \cong \overline{OJ}$	(5) Subtraction
(6) $\angle YJO$ and $\angle TGE$ are rt. $\angle$s	(6) Definition of $\perp$ lines
(7) $\angle YJO \cong \angle TGE$	(7) All right $\angle$s are $\cong$
(8) $\triangle YJO \cong \triangle TGE$	(8) ASA Postulate
(9) $\overline{TG} \cong \overline{YJ}$	(9) CPCTC

Score 5: The student did not prove $\overline{GJ} \cong \overline{GJ}$ to prove step 5.

Question 35

35 In quadrilateral *HOPE* below, $\overline{EH} \cong \overline{OP}$, $\overline{EP} \cong \overline{OH}$, $\overline{EJ} \cong \overline{OG}$, and $\overline{TG}$ and $\overline{YJ}$ are perpendicular to diagonal $\overline{EO}$ at points G and *J*, respectively.



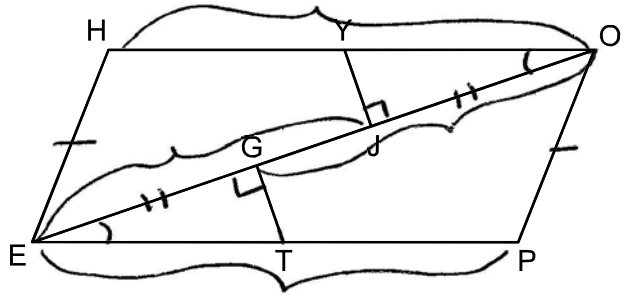
Prove that $\overline{TG} \cong \overline{YJ}$.

1. Quad HOPE, $\overline{EH}\cong\overline{OP}$, $\overline{EP}\cong\overline{OH}$, $\overline{EJ}\cong\overline{OG}$, $\overline{TG}$ & $\overline{YJ}$ are perpendicular to $\overline{EO}$, at G and J	1. Given
2. $\overline{EO}\cong\overline{EO}$	2. Reflexive
3. $\triangle HEO \cong \triangle POE$	3. SSS $\cong$ SSS
4. $\angle YOJ \cong \angle TEG$	4. CPCTC
5. $\angle TGE \cong \angle YJO$	5. All right angles are $\cong$.
6. $\overline{EJ} - \overline{GJ} \cong \overline{OG} - \overline{GJ}$ or $\overline{EG} \cong \overline{JO}$	6. Subtraction
7. $\triangle EGT \cong \triangle OJY$	7. ASA $\cong$ ASA
8. $\overline{TG} \cong \overline{YJ}$	8. CPCTC

Score 4: The student did not prove $\angle TGE$ and $\angle YJO$ are right angles to prove step 5 and did not prove $\overline{GJ} \cong \overline{GJ}$ to prove step 6.

Question 35

35 In quadrilateral *HOPE* below, $\overline{EH} \cong \overline{OP}$, $\overline{EP} \cong \overline{OH}$, $\overline{EJ} \cong \overline{OG}$, and $\overline{TG}$ and $\overline{YJ}$ are perpendicular to diagonal $\overline{EO}$ at points G and *J*, respectively.



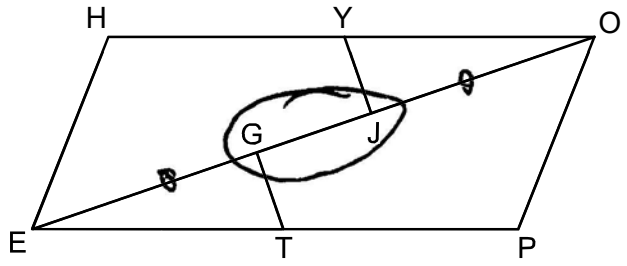
Prove that $\overline{TG} \cong \overline{YJ}$.

Statements	Reasons
(1) Quad HOPE, $\overline{EH} \cong \overline{OP}$, $\overline{EP} \cong \overline{OH}$, $\overline{EJ} \cong \overline{OG}$ and $\overline{TG}$ and $\overline{YJ}$ are $\perp$ to diagonal $\overline{EO}$ at G and J	(1) Given
(2) HOPE is a parallelogram	(2) When a Quad has 2 pairs of $\cong$ opp sides, it is a parallelogram
(3) $\angle GET \cong \angle JOY$	(3) Alternate interior $\angle$'s are $\cong$
(4) $\overline{GJ} \cong \overline{GJ}$	(4) Reflexive
(5) $\overline{EG} \cong \overline{OJ}$	(5) Subtraction Postulate
(6) $\angle TGE$ and $\angle YJO$ are rt. $\angle$'s	(6) Definition of $\perp$ lines
(7) $\angle TGE \cong \angle YJO$	(7) Rt. $\angle$'s are $\cong$
(8) $\triangle TGE \cong \triangle YJO$	(8) ASA
(9) $\overline{TG} \cong \overline{YJ}$	(9) CPCTC

Score 4: The student did not prove $\overline{EP} \parallel \overline{OH}$ to prove step 3 and wrote an incomplete reason in step 3.

Question 35

35 In quadrilateral *HOPE* below, $\overline{EH} \cong \overline{OP}$, $\overline{EP} \cong \overline{OH}$, $\overline{EJ} \cong \overline{OG}$, and $\overline{TG}$ and $\overline{YJ}$ are perpendicular to diagonal $\overline{EO}$ at points G and *J*, respectively.



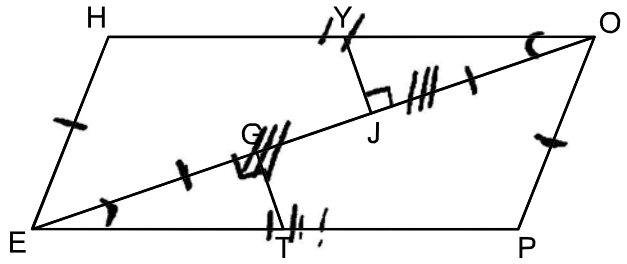
Prove that $\overline{TG} \cong \overline{YJ}$.

$\triangle EOP \cong \triangle OEH$ by SSS. So by CPCTC $\angle OEP \cong \angle EOH$.
Perpendicular lines form congruent right
angles so $\angle TGE \cong \angle YJO$. By subtraction $\overline{OJ} \cong \overline{EG}$
Therefore by AAS $\triangle GET \cong \triangle JOY$ and
$\overline{TG} \cong \overline{YJ}$ by CPCTC

Score 3: The student did not prove $\overline{EO} \cong \overline{EO}$ to prove $\triangle EOP \cong \triangle OEH$, did not prove $\overline{GJ} \cong \overline{GJ}$ to prove $\overline{OJ} \cong \overline{EG}$, and had an incorrect reason to prove $\triangle GET \cong \triangle JOY$.

Question 35

35 In quadrilateral *HOPE* below, $\overline{EH} \cong \overline{OP}$, $\overline{EP} \cong \overline{OH}$, $\overline{EJ} \cong \overline{OG}$, and $\overline{TG}$ and $\overline{YJ}$ are perpendicular to diagonal $\overline{EO}$ at points G and *J*, respectively.



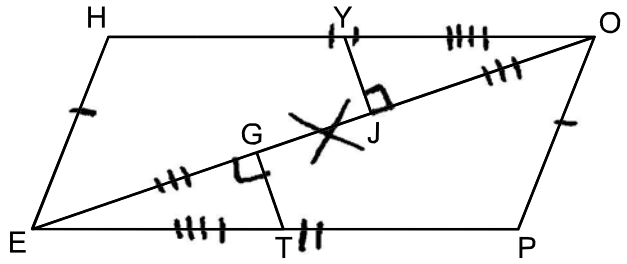
Prove that $\overline{TG} \cong \overline{YJ}$.

1. $\overline{EH} \cong \overline{OP}$, $\overline{EP} \cong \overline{OH}$, $\overline{EJ} \cong \overline{OG}$ — 1. Given
$\overline{TG}$ and $\overline{YJ}$ are perpendicular to diagonal $\overline{EO}$ at points G and J respectively.
2. $\triangle EHO \cong \triangle EPO$ — 2. SSS $\cong$
3. $\overline{EG} \cong \overline{OJ}$ — 3. CPCTC
4. $\angle HOE \cong \angle PEO$ — 4. CPCTC
5. $\angle EGT$ and $\angle OJY$ are right angles — 5. Perpendicular lines form right angles
6. $\angle EGT \cong \angle OJY$ — 6. All right angles are congruent
7. $\triangle EGT \cong \triangle OJY$ — 7. ASA $\cong$
8. $\overline{TG} \cong \overline{YJ}$ — 8. CPCTC

Score 3: The student did not prove $\overline{EO} \cong \overline{EO}$ to prove step 2. The student made a conceptual error in step 3.

Question 35

35 In quadrilateral *HOPE* below, $\overline{EH} \cong \overline{OP}$, $\overline{EP} \cong \overline{OH}$, $\overline{EJ} \cong \overline{OG}$, and $\overline{TG}$ and $\overline{YJ}$ are perpendicular to diagonal $\overline{EO}$ at points G and *J*, respectively.



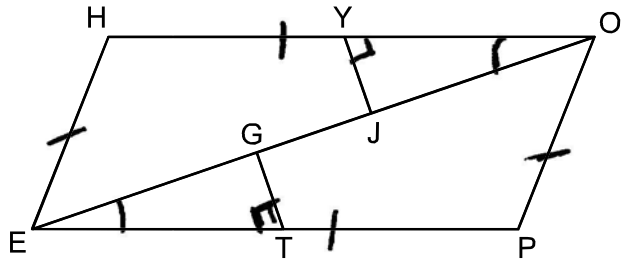
Prove that $\overline{TG} \cong \overline{YJ}$.

Statement	Reason
1. $\overline{EH} \cong \overline{OP}$, $\overline{EP} \cong \overline{OH}$, $\overline{EJ} \cong \overline{OG}$, $\overline{TG} \perp \overline{EO}$, $\overline{YJ} \perp \overline{EO}$	1. given
2. HOPE is a parallelogram	2. opposite sides
3. $\angle G$ and $\angle J$ are 90°	3. perpindicular lines
4. $\overline{EO} \cong \overline{EO}$	4. Reflexive property
5. $\triangle EHO \cong \triangle OPE$	5. SSS $\cong$ SSS
6. $\overline{EG} \cong \overline{OJ}$	6. given
7. $\triangle EGT \cong \triangle OJY$	7. SAS $\cong$ SAS
8. $\overline{TG} \cong \overline{YJ}$	8. CPCTC

Score 2: The student proved $\triangle EHO \cong \triangle OPE$.

Question 35

35 In quadrilateral *HOPE* below, $\overline{EH} \cong \overline{OP}$, $\overline{EP} \cong \overline{OH}$, $\overline{EJ} \cong \overline{OG}$, and $\overline{TG}$ and $\overline{YJ}$ are perpendicular to diagonal $\overline{EO}$ at points G and *J*, respectively.



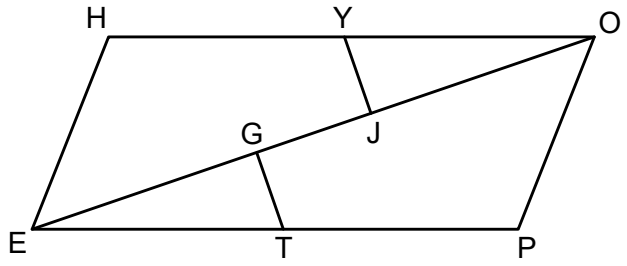
Prove that $\overline{TG} \cong \overline{YJ}$.

Claim	Proof
(1) $\overline{EH} \cong \overline{OP}$, $\overline{EP} \cong \overline{OH}$, $\overline{EJ} \cong \overline{OG}$, $\overline{TG}$ and $\overline{YJ}$ are perpendicular to diagonal $\overline{EO}$ @ points G and J	(1) Given
(2) $\angle GTE$ is a right angle, $\angle JYO$ is a right angle	(2) perpendicular lines create right angles
(3) ~~$\angle GTE$~~ & $\angle YOJ \cong \angle TEG$	(3) parallel lines create alternate angles
(4) $\overline{EO} \cong \overline{EO}$	(4) reflexive
(5) $\overline{OJ} \cong \overline{EG}$	(5) subtraction postulate
(6) $\triangle OYJ \cong \triangle EGT$	(6) ASA
(7) $\overline{TG} \cong \overline{YG}$	(7) CPCTC

Score 2: The student had two correct statements and reasons in steps 4 and 5.

Question 35

35 In quadrilateral *HOPE* below, $\overline{EH} \cong \overline{OP}$, $\overline{EP} \cong \overline{OH}$, $\overline{EJ} \cong \overline{OG}$, and $\overline{TG}$ and $\overline{YJ}$ are perpendicular to diagonal $\overline{EO}$ at points G and *J*, respectively.



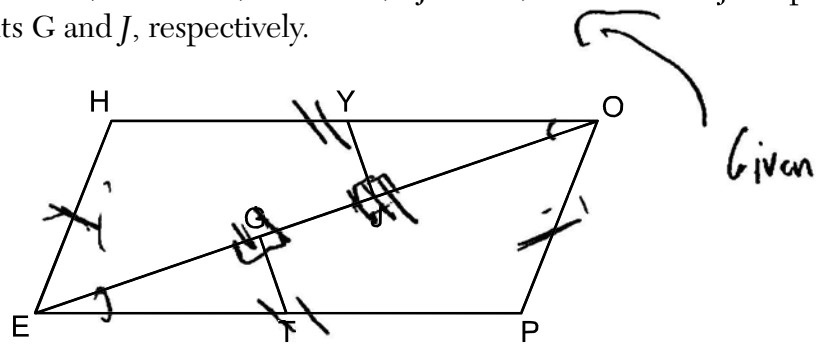
Prove that $\overline{TG} \cong \overline{YJ}$.

Statements	Reasons
(1) Quad HOPE, $\overline{EH} \cong \overline{OP}$, $\overline{EJ} \cong \overline{OG}$, $\overline{EP} \cong \overline{OH}$, $\overline{TG}$ and $\overline{YJ}$ are perpendicular to diagonal $\overline{EO}$ at points G and J	(1) Given
(2) HOPE is a parallelogram	(2) If a quad has 2 pairs of opp. sides $\cong$, then the quad is a parallelogram.
(3) $\overline{TG} \cong \overline{YJ}$	(3) CPCTC

Score 1: The student had one correct statement and reason in step 2.

Question 35

35 In quadrilateral *HOPE* below, $\overline{EH} \cong \overline{OP}$, $\overline{EP} \cong \overline{OH}$, $\overline{EJ} \cong \overline{OG}$, and $\overline{TG}$ and $\overline{YJ}$ are perpendicular to diagonal $\overline{EO}$ at points G and *J*, respectively.



Given

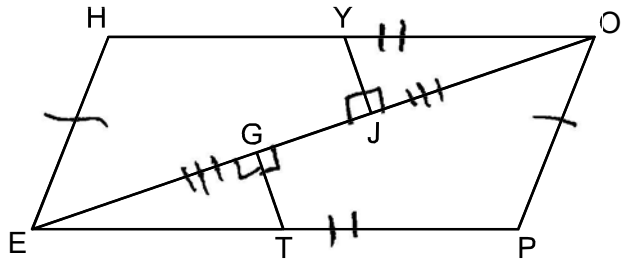
Prove that $\overline{TG} \cong \overline{YJ}$.

Statement	Reason
1. ∠EOY ≅ ∠OGT	1. Parallel lines cut by a transversal form congruent alternating angles
2. ∠OJY & ∠TGE are right angles	2. perpendicular lines form right angles
3. ∠OJY ≅ ∠EGT	3. All right angles are congruent
4.	
. $\overline{TG} \cong \overline{YJ}$	. CPCTC

Score 1: The student correctly proved $\angle OJY \cong \angle EGT$.

Question 35

35 In quadrilateral *HOPE* below, $\overline{EH} \cong \overline{OP}$, $\overline{EP} \cong \overline{OH}$, $\overline{EJ} \cong \overline{OG}$, and $\overline{TG}$ and $\overline{YJ}$ are perpendicular to diagonal $\overline{EO}$ at points G and *J*, respectively.



Prove that $\overline{TG} \cong \overline{YJ}$.

△EGT and △OJY are both right triangles (right angle)

$\overline{EG} \cong \overline{OJ}$ (Given)

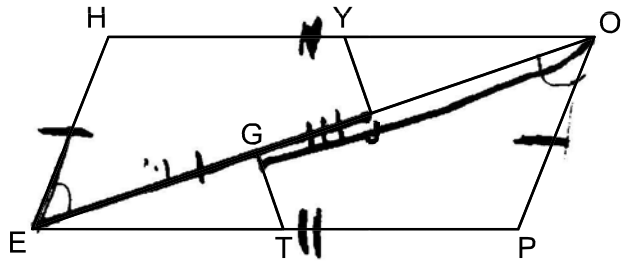
△EGT ≅ △OJY (HL)

$\overline{TG} \cong \overline{YJ}$ (CPCTC)

Score 0: The student did not show enough correct relevant work to receive any credit.

Question 35

35 In quadrilateral *HOPE* below, $\overline{EH} \cong \overline{OP}$, $\overline{EP} \cong \overline{OH}$, $\overline{EJ} \cong \overline{OG}$, and $\overline{TG}$ and $\overline{YJ}$ are perpendicular to diagonal $\overline{EO}$ at points G and *J*, respectively.



Prove that $\overline{TG} \cong \overline{YJ}$.

Statement	
$\overline{EH} \cong \overline{OP}$, $\overline{EP} \cong \overline{OH}$, $\overline{EJ} \cong \overline{OG}$, $\overline{TG}$ and $\overline{YJ}$ are perpendicular to diagonal $\overline{EO}$ at points G and J, respectively	Given
$\angle HEO \cong \angle POE$	Alternate Interior angles are congruent.
$\triangle HEO \cong \angle POE$ are congruent	All Right angles are congruent.

Score 0: The student did not show enough correct relevant work to receive any credit.

The State Education Department / The University of the State of New York

Regents Examination in Geometry – August 2024

Chart for Converting Total Test Raw Scores to Final Exam Scores (Scale Scores)

(Use for the August 2024 exam only.)

Raw Score	Scale Score	Performance Level
80	**100**	5
79	**99**	5
78	**97**	5
77	**96**	5
76	**95**	5
75	**94**	5
74	**93**	5
73	**92**	5
72	**92**	5
71	**91**	5
70	**90**	5
69	**89**	5
68	**88**	5
67	**87**	5
66	**87**	5
65	**86**	5
64	**86**	5
63	**85**	5
62	**84**	4
61	**83**	4
60	**83**	4
59	**82**	4
58	**82**	4
57	**81**	4
56	**81**	4
55	**80**	4
54	**79**	3

Raw Score	Scale Score	Performance Level
53	**79**	3
52	**78**	3
51	**78**	3
50	**77**	3
49	**77**	3
48	**76**	3
47	**76**	3
46	**75**	3
45	**75**	3
44	**74**	3
43	**73**	3
42	**73**	3
41	**72**	3
40	**71**	3
39	**71**	3
38	**70**	3
37	**69**	3
36	**68**	3
35	**67**	3
34	**67**	3
33	**66**	3
32	**65**	3
31	**64**	2
30	**63**	2
29	**62**	2
28	**60**	2
27	**59**	2

Raw Score	Scale Score	Performance Level
26	**58**	2
25	**57**	2
24	**56**	2
23	**55**	2
22	**53**	1
21	**51**	1
20	**50**	1
19	**48**	1
18	**47**	1
17	**45**	1
16	**43**	1
15	**41**	1
14	**39**	1
13	**37**	1
12	**35**	1
11	**33**	1
10	**31**	1
9	**28**	1
8	**26**	1
7	**23**	1
6	**20**	1
5	**17**	1
4	**14**	1
3	**11**	1
2	**7**	1
1	**4**	1
0	**0**	1

To determine the student's final examination score (scale score), find the student's total test raw score in the column labeled "Raw Score" and then locate the scale score that corresponds to that raw score. The scale score is the student's final examination score. Enter this score in the space labeled "Scale Score" on the student's answer sheet.

Schools are not permitted to rescore any of the open-ended questions on this exam after each question has been rated once, regardless of the final exam score. Schools are required to ensure that the raw scores have been added correctly and that the resulting scale score has been determined accurately.

Because scale scores corresponding to raw scores in the conversion chart change from one administration to another, it is crucial that for each administration the conversion chart provided for that administration be used to determine the student's final score. The chart above is usable only for this administration of the Regents Examination in Geometry.